



nonresponsive

**From:** Jeff Hartness [REDACTED] *privacy*

**Sent:** Wednesday, April 30, 2014 10:21 PM

**To:** Molitor, Pamela

**Cc:** Hartness, Jeff

**Subject:** Soil Sampling for the Remedial Investigation at the Bautsch-Gray Mine Superfund Site Located at 746 South Blackjack Road in Jo Daviess County, Illinois

Hi Pamela,

I just completed the access agreement you sent me and will mail it back to you tomorrow.

For clarification purposes, please explain to me why you need to do extensive sampling on my property as well as the Bautsch-Gray Mine property. Extensive sampling on both of these properties has already been conducted by Bruce Everetts with the Illinois EPA and On-Scene Coordinator, Len Zintek, from your own Region 5.

Weston Solutions, Inc., did a Site Assessment Report on March 9, 2010. The IEPA did a Expanded Site Inspection Report on November 23, 2010. Please see the attached copies of these documents for your review.

Thank you.

Stephan (Jeff) Hartness

[REDACTED] *privacy*

**SITE ASSESSMENT REPORT  
FOR  
BAUTSCH-GRAY MINE SITE  
JO DAVIESS COUNTY, ILLINOIS**

Prepared for:

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
Emergency Response Branch  
Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3507

Prepared by:

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WESTON START Project Manager	Lisa Graczyk
Telephone Number	312-424-3339
U.S. EPA On-Scene Coordinator	Leonard Zintak

**SITE ASSESSMENT REPORT  
FOR  
BAUTSCH-GRAY MINE SITE  
JO DAVIESS COUNTY, ILLINOIS**

Prepared for:

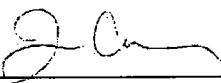
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March 9, 2010

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Date: 3/9/2010

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Date: 3/9/2010

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## LIST OF ABBREVIATIONS AND ACRONYMS

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bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	<i>Code of Federal Regulations</i>
FIELDS	Field Environmental Decision Support
GPS	Global positioning system
IEPA	Illinois Environmental Protection Agency
MCL	Maximum contamination level
mg/L	Milligram per liter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OSC	On-Scene Coordinator
ppm	Part per million
RCRA	Resource Conservation and Recovery Act
RSL	Regional Screening Level
START	Superfund Technical Assessment and Response Team
SVOC	Semivolatile organic compound
TCLP	Toxicity Characteristic Leaching Procedure
TDD	Technical Direction Document
U.S. EPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound
WESTON	Weston Solutions, Inc.
XRF	X-ray fluorescence

## 1. INTRODUCTION

The U.S. Environmental Protection Agency (U.S. EPA) tasked the Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team (START) to assist U.S. EPA On-Scene Coordinator (OSC) Leonard Zintak in performing a site assessment at the Bautsch-Gray Mine Site in Jo Daviess County, Illinois (the Site). Under Technical Direction Document (TDD) No. S05-0001-0909-011, U.S. EPA requested that WESTON START document current site conditions; collect soil and water samples; obtain photographic documentation; and evaluate the potential for imminent and substantial threats to human health, human welfare, and the environment posed by Site-related conditions. From October 6 through 8, 2009, WESTON START conducted a site assessment under the direction of OSC Leonard Zintak.

This site assessment report is organized into the following sections:

- **Introduction** – Provides a brief description of the objective and scope of site assessment activities;
- **Site Background** – Details the Site description and its known history;
- **Site Assessment Activities** – Discusses the methods and procedures used during the site assessment;
- **Analytical Results** – Discusses the analytical results for samples collected during the site assessment;
- **Threats to Human Health and the Environment** – Identifies Site-related conditions that may warrant a removal action under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP); and
- **Conclusions and Recommendations** – Summarizes the site assessment findings and recommendations for further Site activities as needed.

## 2. SITE BACKGROUND

This section discusses the site description and history.

### 2.1 SITE DESCRIPTION

The Site is located on South Blackjack Road between 747 and 779 South Blackjack Road near

Galena in Jo Daviess County, Illinois (Figure 1). The Site is located approximately 4 miles south of downtown Galena, Illinois, and includes a former lead and zinc mine property that occupies approximately 55 acres, a residential property that occupies approximately 5 acres, and a horseshoe-shaped area containing mine tailings located across the road from the mine that occupies approximately 17 acres (Figure 2). The Site is located in a rural agricultural and residential area. The Mississippi River is located approximately 2 miles west of the Site. The meridian coordinates of the approximate center of the mine tailings pile at the Site are latitude 42° 21' 26.72" North and longitude 90° 23' 54.85" West.

## 2.2 SITE HISTORY

The Bautsch-Gray Mine was an operational lead and zinc mine from the 1850s until operations ceased in 1975. Since then, the tailings from the mine property have continued to erode and migrate toward residential properties, wetlands, and fisheries. In 2000 and 2001, Illinois Environmental Protection Agency's (IEPA) conducted Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site assessment activities. These activities confirmed that the waste piles at the mine property contained elevated levels of lead, arsenic, and other heavy metals. Additional investigations revealed that nearby creeks and drainage ditches had been impacted by material that had migrated from a large mine tailings pile on the mine property. In addition, one residential groundwater well (746 S. Blackjack Road) was determined to have been impacted by the mine tailings. This resident was notified by the Illinois Department of Public Health of these findings and is currently using bottled water.

In addition, IEPA's records indicate that Eagle Picher (previous owner/operator) was issued a permit (No. 1971-EA-1226) on December 21, 1971, for mine pump-out treatment works. This permit indicates a settling lagoon with a capacity of 760,000 cubic feet. An Eagle Picher diagram of the Bautsch-Gray mine indicated that the settling lagoon was located on the east side of Blackjack Road. The current horseshoe shaped area containing mine tailings that is west of Blackjack Road appears to be just across this road from the area that contained the settling lagoon. An NPDES permit (No. 0003086) was issued to Eagle Picher on June 6, 1975, and terminated by IEPA in August 1989.

During a large August 2009 rain event, mine tailings were flushed from the main waste pile at the mine property across Blackjack Road and onto a residential property at 746 S. Blackjack Road. According to the Jo Daviess Highway Department, apparently this has been a frequent problem during the rainy seasons over the last several years. On August 24, 2009, the IEPA conducted x-ray fluorescence (XRF) field screening at approximately 36 locations, including soil at the residential property, mine property tailings piles, and soil in nearby ditches. The XRF results indicated lead levels as high as 2,160 parts per million (ppm) in mine tailings and as high as 1,282 ppm in soil at the residential property. In addition, two soil samples were collected for toxicity characteristic leaching procedure (TCLP) metals analyses. Both samples indicated lead levels exceeding 5 milligrams per liter (mg/L), the toxicity characteristic for lead according to Title 40 of the *Code of Federal Regulations* (CFR), Part 261.24. In addition, vehicles that travel on Blackjack Road create and disperse dust that originates from mine tailing residues.

The IEPA submitted a referral letter dated September 8, 2009, to U.S. EPA requesting assistance at the Site.

### **3. SITE ASSESSMENT ACTIVITIES**

From October 6 through 8, 2009, the following parties met at the Site to conduct the site assessment: U.S. EPA OSC Leonard Zintak, U.S. EPA Field Environmental Decision Support (FIELDS) members John Bing-Canar and Chuck Roth, IEPA Community Relations Coordinator Michelle Tebrugge, IEPA Bureau of Land representative Bruce Everetts, and WESTON START members Jon Colomb and Jeff Bryniarski.

The project objectives for this site assessment included the following:

- Assess and evaluate the magnitude and extent of contamination in soil in areas where mine tailings may have been dispersed;
- Provide the IEPA or other public health agencies with data to be used in determining the magnitude of any health threat to residents; and
- Determine whether the Site poses an imminent and substantial threat to human health, human welfare, and the environment.

The site reconnaissance, site observations, and sampling activities are discussed below.

### **3.1 SITE RECONNAISSANCE**

U.S. EPA FIELDS conducted the site reconnaissance on October 5, 2009. Based on visual observations and the aid of the property owner at 746 S. Blackjack Road, biased sampling locations were identified. The unbiased sampling locations were determined using the mine footprint and grids with 50- to 200-foot spacing. In order to document Site conditions, WESTON START conducted written and photographic documentation beginning on October 6, 2009 (see Appendix A).

The property owner at 746 S. Blackjack Road provided photographs of the extent and approximate locations of mine tailings that washed onto the road and property after the August 2009 rain event discussed in Subsection 2.2. In addition, the residential property lawn showed signs of distress in areas where the mine tailings had migrated.

### **3.2 SITE OBSERVATIONS**

WESTON START observations during the site reconnaissance are summarized below. Appendix A provides photographic documentation of Site observations.

- The former mine area on the east side of S. Blackjack Road consists of approximately 55 acres and remains abandoned, with very little vegetative growth amongst the mine tailings. The tailings are graded into a large berm that steeply slopes along S. Blackjack Road. An access road leading into the former mine property was secured with a metal gate, and some perimeter fencing remained in place. A large drainage culvert running under Blackjack Road directs water and waste onto a marshland located on a residential property located across Blackjack Road.
- Smallpox Creek is located approximately 500 meters north and west of the Site. The creek bends south where it receives flow from the marshland located southwest of the Site.
- The ground surface generally slopes downward from the Site southwest toward Smallpox Creek. According to the previous investigation by IEPA, it is believed that groundwater flow is in the same direction (that is, from the Site southwest to the marshland and into Smallpox Creek).

- Residential properties are located directly across S. Blackjack Road to the west of the Site. Migration of mine tailings to the west and southwest directly impacts these properties.
- The residence at 746 S. Blackjack Road is located downgradient from the mine property and road elevation. IEPA provided photographs of the extent and approximate locations of mine tailings that washed onto the road and property after the August 2009 rain event. In addition, the property lawn and vegetation showed signs of distress in areas where the mine tailings had migrated.
- The residence at 798 S. Blackjack Road is located at street elevation, with low marshland surrounding the lawn area on three sides. In what appeared to be former marshland, mine tailings had migrated in a southwestern direction toward Smallpox Creek through a drainage culvert, wind dispersal, and overland drainage. The southwest end of the horseshoe-shaped area of mine tailings (Figure 2) is approximately 16 feet deep; the eastern end is approximately 4 feet deep. This waste migration is believed to have been ongoing since mining activities began. The volume and depth of the waste in this area supports this theory. Again, very little vegetative growth was observed on the tailings in this area. A makeshift dam of woodland debris and trash separated the tailings from vegetated marshland further south. WESTON START observed that the dam has been damaged, possibly by the August 2009 rain event.

### 3.3 SAMPLING ACTIVITIES

Sampling activities during the site assessment included soil, residential well water, and surface water sampling as discussed below.

#### Soil Sampling

U.S. EPA FIELDS determined XRF field screening sampling locations using grids with 50- to 200-foot spacing as indicated in the site-specific field sampling plan. In addition, some XRF sampling locations were determined in the field. U.S. EPA FIELDS recorded all sampling locations using a global positioning system (GPS) unit. A total of 150 samples were collected and field screened using the XRF instrument. Figures 3 shows the XRF sampling locations. Section 4 discusses the XRF results. Samples S001 through S036 and S140 through S159 were collected throughout the 55-acre former mine property. Samples S037 through S059, S160 through S183, and S500 were collected throughout the approximately 5-acre adjacent residential property west of the mine property. Samples S101 through S139 and S184 through S190 were

collected in and around the 17-acre runoff ravine to the southwest where the horseshoe-shaped area containing mine tailings is present.

U.S. EPA FIELDS conducted the XRF field screening using an Innov-X (Alpha Model 4000S) to identify soil with high metals concentrations. Field screening was conducted on surface soil intervals of 0 to 6 inches below ground surface (bgs). U.S. EPA FIELDS donned fresh sampling gloves at each sampling location. Soil samples were collected using a decontaminated stainless-steel trowel or bucket auger. For each sample, the soil was homogenized and placed in a Ziploc bag. The Ziploc bag was labeled with the sample number, date, and time of collection. XRF field screening was conducted through the Ziploc bag, and a 1-minute analysis time was used for each sampling interval.

U.S. EPA and WESTON START selected 32 of the XRF soil samples for laboratory analysis in a biased fashion based on the XRF field screening results. Soil samples were selected for analysis to represent a range of metal concentrations, verify the XRF field screening results, and develop a correlation of the XRF results to the laboratory analytical results. The sample containers were filled directly from the Ziploc bag containing homogenized soil and labeled. Field duplicate samples were collected at a rate of 1 in every 10 investigative samples. All samples were submitted for analysis for total Resource Conservation and Recovery Act (RCRA) metals plus copper, nickel, zinc, and pH. TCLP metals were analyzed for selected samples pending the results of the total metals analyses. WESTON START packaged and shipped all samples to STAT Analysis Corporation of Chicago, Illinois, under chain of custody.

### **Residential Well Water Sampling**

Residential well sampling was conducted at 746 and 820 S. Blackjack Road. Figure 4 shows the two residential well sampling locations. Prior to sampling each well, U.S. EPA secured property owner approval and the home water treatment systems were disengaged. WESTON START purged the wells for 15 minutes prior to sampling. During the purging period, WESTON START monitored water parameters using a YSI water quality meter and documented parameters on residential well sampling forms. After well field readings had stabilized (at  $\pm 0.1$  standard unit for pH,  $\pm 3$  percent for conductivity, and  $\pm 0.1$  °Celsius for temperature),

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WESTON START filled designated containers with the residential well water.

Residential well water samples were submitted for analyses for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), metals, and pH. WESTON START packaged and shipped all samples to TestAmerica Laboratory of University Park, Illinois, under chain of custody.

## **Surface Water Sampling**

Surface water samples were collected from two areas impacted by former mining activities. Figure 4 shows the two surface water sampling locations. WESTON START used a reach pole at each location to sample the water and fill the designated sample containers. The first surface water sample was collected from a shaded shallow pool located at the center of the mine property. The second surface water sample was collected from the marshland approximately 500 meters from the Site. XRF field soil screening conducted by U.S. EPA FIELDS showed elevated lead levels throughout the marshland area.

Surface water samples were submitted for analyses for VOCs, SVOCs, metals, and pH. WESTON START packaged and shipped all samples to TestAmerica Laboratory of University Park, Illinois, under chain of custody.

## **4. ANALYTICAL RESULTS**

This section discusses the soil (Section 4.1), residential well water (Section 4.2), and surface water (Section 4.3) sample analytical results. Laboratory data and associated data validation report are provided in Appendix B.

### **4.1 SOIL SAMPLE ANALYTICAL RESULTS**

Approximately 150 soil samples were field screened for metals with an XRF instrument, and 36 of these samples (includes four field duplicates) were analyzed by a laboratory for RCRA metals plus copper, nickel, zinc, and pH. Five of these samples were further analyzed by the laboratory for TCLP metals.

For the lead results, U.S. EPA FIELDS used simple linear regression and regression diagnostics to find the “best fitting” linear relationship between XRF measurements of residential soil metals and their corresponding laboratory measurements. Appendix C contains a document prepared by U.S. EPA FIELDS that provides details of this regression analysis. Based on the results of the simple linear regression, the XRF lead results were adjusted. Figure 3 shows the lead results for the soil samples collected. Table 1-A presents the XRF metal results, including the adjusted lead

results. Table 1-B presents the laboratory data for soil samples. Figure 5 shows the laboratory lead results.

Soil analytical results were compared to the following screening levels:

- Removal action level for lead of 1,200 ppm as stated in the U.S. EPA "Superfund Lead-Contaminated Residential Sites Handbook";
- Cleanup objective level for lead of 400 ppm as stated in the U.S. EPA "Superfund Lead-Contaminated Residential Sites Handbook";
- Cleanup objective level for arsenic of 25 ppm as recommended by Agency for Toxic Substances and Disease Registry (ATSDR) for residential soil (ATSDR action level range from 25 to 100 ppm for arsenic; 100 ppm for removals and 25 ppm for remedial cleanups);
- U.S. EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites (RSL) ([http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm)) for metals other than arsenic; and
- TCLP screening levels in 40 CFR 261.24 (applies to TCLP metals results only).

A discussion of the XRF and laboratory soil data is presented below by area of concern.

**Residential Area:** The residential area of concern occupies approximately 5 acres in and around the property at 746 S. Blackjack Road. A total of 42 XRF sample results and 18 laboratory results (including 2 field duplicates) are associated with this area. Some of these samples consisted of mine tailings (see Tables 1-A and 1-B). Below is a summary of the metals that exceeded screening levels.

- Lead was detected in all samples collected in and around the 5-acre residential area. Laboratory lead results ranged from 23 to 1,300 ppm, and XRF lead results ranged from 27 to 2,178 ppm. Four of the XRF results and two of the laboratory results exceeded the U.S. EPA removal action level of 1,200 ppm lead. Eighteen XRF lead results and nine laboratory lead results (including one field duplicate result) exceeded 400 ppm, both the U.S. EPA cleanup objective for lead and the U.S. EPA RSL for lead in residential soils.
- No sample results exceeded the TCLP screening levels for metals in this area.
- Six XRF results and four laboratory results exceeded 25 ppm arsenic, the ATSDR recommended cleanup objective for arsenic in residential soils.

- One laboratory result exceeded 23,000 ppm zinc, the U.S. EPA RSL for zinc in residential soils.

**Former Mine Property:** The former mine property includes the area around the 55-acre former mine. A total of 56 XRF sample results and 8 laboratory results are associated with this area. Approximately half of these samples consisted of mine tailings and the other half of soil (see Tables 1-A and 1-B). Below is a summary of the metals that exceeded screening levels.

- Lead was detected in all samples collected around the 55-acre former mine area. The XRF lead results ranged from 87 to 9,577 ppm, and the laboratory lead results ranged from 120 to 7,200 ppm. Twenty-four of the XRF results and four of the laboratory results exceeded the U.S. EPA removal action level of 1,200 ppm lead. Forty-one XRF lead results and five laboratory lead results exceeded 400 ppm, both the U.S. EPA cleanup objective for lead and the U.S. EPA RSL for lead in residential soils.
- Three samples (two tailings and one soil sample) exceeded the TCLP screening level for lead of 5 mg/L.
- Twenty-nine XRF results and three laboratory results exceeded 25 ppm arsenic, the ATSDR recommended cleanup objective for arsenic in residential soils.
- One XRF result and one laboratory result (both from the same sampling location) exceeded 23,000 ppm zinc, the U.S. EPA RSL for zinc in residential soils.

**Runoff Ravine (includes horseshoe-shaped area containing mine tailings south of residence):** The runoff ravine area is south of the residential area that includes the horseshoe-shaped mine tailings area and the ravine south of this area, which is an apparent runoff area for mine tailings from the mine across Blackjack Road. This area is estimated to be approximately 17 acres in size. A total of 45 XRF sample results and 7 laboratory results (including 1 field duplicate) are associated with this area. Approximately half of these samples consisted of mine tailings and the other half of soil (see Tables 1-A and 1-B). Below is a summary of the metals that exceeded screening levels.

- Lead was detected in all samples collected in and around the southwest 17-acre runoff ravine area. XRF lead results ranged from 61 to 3,915 ppm, and laboratory lead results ranged from 240 to 4,000 ppm. Twenty-two of the XRF results and three of the laboratory results exceeded the U.S. EPA removal action level of 1,200 ppm lead. Twenty-eight XRF results and six laboratory results (including one field duplicate) exceeded 400 ppm lead, both the U.S. EPA cleanup objective for lead and the U.S. EPA RSL for lead in residential soils.

- One XRF result and five laboratory results (including one field duplicate) exceeded 25 ppm arsenic, the ATSDR recommended cleanup objective for arsenic in residential soils.
- No sample results exceeded the TCLP screening levels for metals in this area.

**Along Blackjack Road:** Some samples were collected from the east and west sides of Blackjack Road north of the areas discussed above in order to determine how far the metals contamination had migrated to the north. A total of seven XRF sample results and three laboratory results (including one field duplicate) are associated with this area. A few of these samples consisted of mine tailings (see Tables 1-A and 1-B). Below is a summary of the metals that exceeded screening levels.

- Lead was detected in all samples collected from this area. XRF lead results ranged from 93 to 1,147 ppm, and laboratory lead results ranged from 790 to 1,100 ppm. None of the sample results exceeded the U.S. EPA removal action level of 1,200 ppm lead. Four XRF results and three laboratory results (including one field duplicate) exceeded 400 ppm lead, both the U.S. EPA cleanup objective for lead and the U.S. EPA RSL for lead in residential soils.
- Three laboratory results (including one field duplicate) exceeded 25 ppm arsenic, the ATSDR recommended cleanup objective for arsenic in residential soils.

## 4.2 RESIDENTIAL WELL WATER SAMPLE ANALYTICAL RESULTS

Two residential well samples plus one field duplicate were collected and analyzed for VOCs, SVOCs, metals, and pH. Tables 2-A, 2-B, and 2-C summarize the analytical results for these samples. The residential well water sample results were compared to the U.S. EPA RSLs for tap water and the U.S. EPA maximum contaminant levels (MCL) for drinking water. Below is a summary of the analytical results that exceeded screening levels.

- **Metals.** Several metals were detected in the residential well samples. Only lead exceeded its MCL of 0.015 mg/L in sample BG-RW01-100609, which contained 0.027 mg/L lead.
- **VOCs.** VOCs were not detected in the residential well samples.
- **SVOCs.** SVOCs were not detected in the residential well samples.

### 4.3 SURFACE WATER SAMPLE ANALYTICAL RESULTS

Two surface water samples were collected and analyzed for VOCs, SVOCs, metals, and pH. Tables 3-A, 3-B, and 3-C summarize the analytical results for these samples. The surface water sample results were compared to the U.S. EPA RSLs for tap water and the U.S. EPA MCLs for drinking water. Below is a summary of the analytical results that exceeded screening levels.

- **Metals.** Several metals exceeded the screening levels in the surface water samples. The metals that exceeded screening levels in sample BG-SW01-100709 (collected from the mine property) include arsenic, beryllium, cadmium, cobalt, lead, manganese, thallium, and vanadium. The metals that exceeded screening levels in sample BG-SW02-100709 (collected from the ravine area south of the residential area) include lead and arsenic. The lead levels were 63 and 0.020 mg/L in samples BG-SW01-100709 and BG-SW02-100709, respectively. Table 3-A presents a complete summary of the detected metals results.
- **VOCs.** Acetone was the only VOC detected. Acetone was detected in sample BG-SW01-100709 at 0.0071 mg/L, which is below the screening levels.
- **SVOCs.** SVOCs were not detected in the surface water samples.

## 5. THREATS TO HUMAN HEALTH AND THE ENVIRONMENT

Factors to be considered in determining the appropriateness of a potential removal action at a Site are delineated in the NCP at 40 CFR 300.415(b)(2). A summary of the factors applicable to this Site is presented below.

- **Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances, pollutants, or contaminants**

The Bautsch-Gray Mine is located approximately 50 feet east of a residential house and approximately 700 feet upgradient of Smallpox Creek. The creek flows from north to south, where it eventually reaches the Mississippi River 1.5 miles west of the Site. Lead results exceeded the removal action level, cleanup objective, and RSL in several samples from the residential area, former mine property, ravine area south of the residence, and along Blackjack Road. TCLP lead concentrations were detected in three samples above the RCRA limits, indicating the presence of characteristically hazardous waste. In addition, the residential well across the street from the former mine property had a lead concentration exceeding its U.S. EPA MCL. These results indicate that mine tailings are migrating to the residential property and ravine area south of the residential property at levels exceeding removal actions levels for lead in

soil.

Access to the mine property is limited by a steel swing gate at the northwest access road to the mine. Access to the mine property by foot is not limited in any significant way, and there is evidence in the mine vicinity of hiking trails that cross the mine property. According to the Jo Daviess Highway Department, people in the area are known to remove mine tailing materials from the Site for personal use without permission from the Site owners.

Deer were observed near the Site on a number of occasions, and deer tracks were observed near standing water ponds on the Site. Although there was not much physical evidence of other animals living on or near the Site, according to the Illinois Department of Natural Resources, many endangered, threatened, or rare species specific to Jo Daviess County are located in the area. The species include fish, amphibians, reptiles, birds, mammals, vascular plants, forest, and wetland species.

- **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate**

Lead results exceeding U.S. EPA removal action levels and cleanup objectives were detected in surface soil samples from the following areas: around the mine property, in and around the southwest runoff ravine, and in the adjacent residential area.

The mine Site is located approximately 50 feet east of a residential house and approximately 1,000 feet south and east of Smallpox Creek. Evidence of mine tailings running off site during past rain events was observed throughout the adjacent residence and in the runoff ravine southwest of the Site. Lead results exceeding the removal action level were found in surface soil samples collected from nearly 1,500 feet southwest of the Site in the ravine. The ravine and residential property both provide a clear downgradient path to Smallpox Creek, which eventually reaches the Mississippi River.

- **Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released**

Evidence of mine tailings running off site during past rain events was observed throughout the adjacent residence and in the runoff ravine southwest of the Site. It is presumed that fine-grained sediment has been running off the Site and depositing in the runoff ravine during rain events for more than 100 years. It is estimated but not confirmed that fine-grained sediment deposits may be as deep as 5 feet in some areas.

In addition, heavy winds can be responsible for the migration of mine tailings into the air and onto nearby properties.

## **6. CONCLUSIONS AND RECOMMENDATIONS**

This section discusses the conclusions and recommendations based on the site assessment  
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findings.

## 6.1 CONCLUSIONS

During the site assessment, U.S. EPA FIELDS conducted XRF field screening of 150 surface soil samples and WESTON START collected 32 of these surface soil samples (plus 4 field duplicates) for laboratory analysis. In addition, two residential well water samples (plus one field duplicate) and two surface water samples were collected. These samples were collected to determine if the Site poses imminent and substantial threats to human health, human welfare, and the environment from the presence of potentially hazardous materials at the Site. The main constituent of concern, lead, yielded results exceeding the U.S. EPA removal action level and cleanup objective in samples collected from in and around the adjacent residential area, in and around the southwest runoff ravine area, and around the mine property. In addition, lead was detected in water from the residential well directly across the street from the mine property at concentrations exceeding its MCL. Hazards identified at the Site include the uncontrolled factors summarized below.

- Lead exceeds removal action and screening levels at the residential property.
- There is a potential migration pathway from the mine tailing piles to Smallpox Creek.
- There is a continued risk of tailings being deposited on Blackjack Road and adjacent properties during rain events.

Contaminants and conditions at the Site meet criteria established in the NCP at 40 CFR 300.415(b)(2) for a removal action.

## 6.2 RECOMMENDATIONS

Based on information gathered during the site assessment, recommendations are summarized below.

- Surface and subsurface soils and tailings exceeding the cleanup objectives should be excavated and/or stabilized in and around the affected areas, specifically at the adjacent residential property and runoff ravine area (note that excavation of lead contaminated soils will also remove arsenic-contaminated soils above the ATSDR recommended cleanup objective). Excavation should reduce the potential for a



release of contaminated materials that could result in, but not be limited to, any or all of the following:

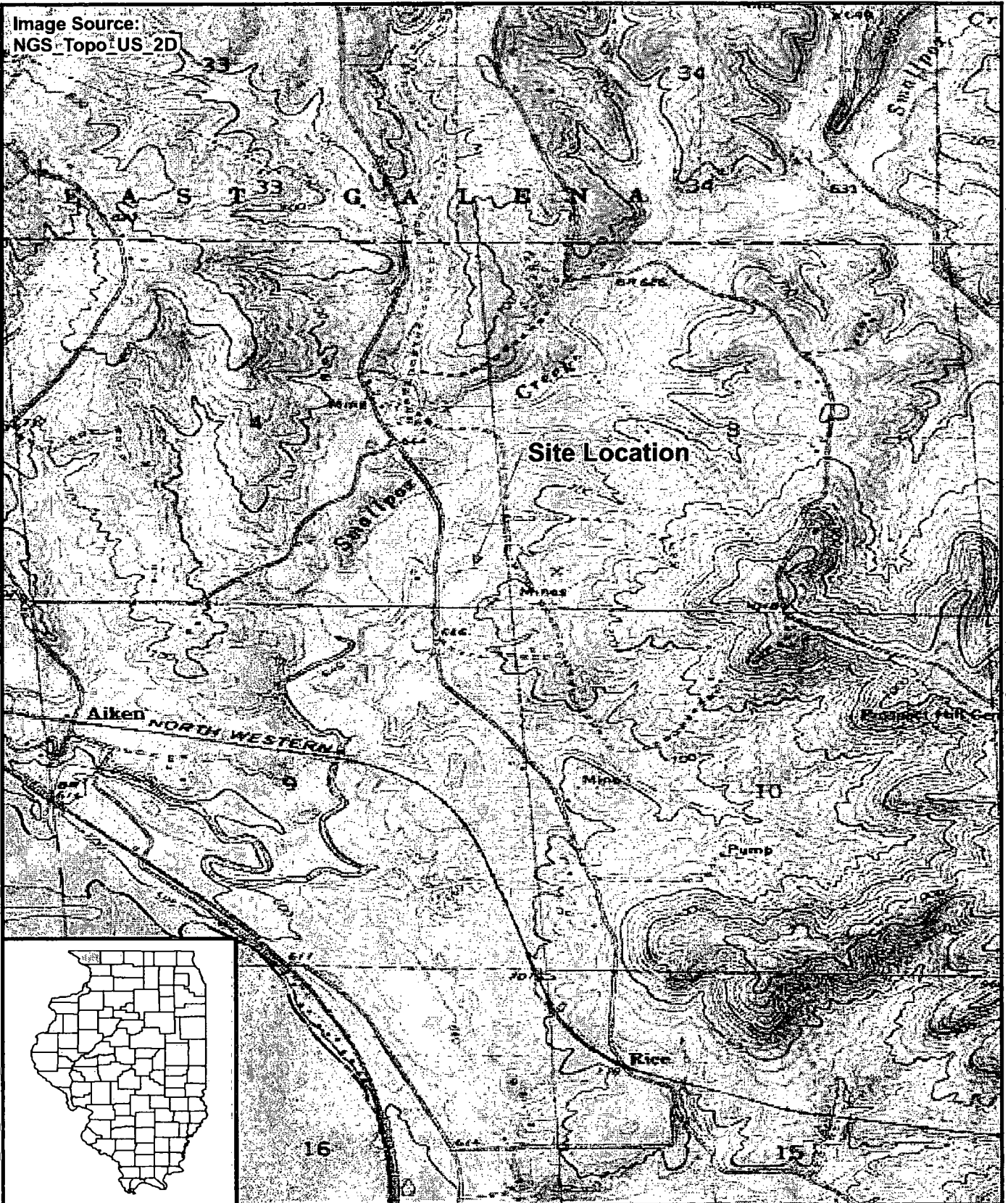
- Actual or potential exposure of nearby human populations, animals, or the food chain to hazardous substances, pollutants, or contaminants;
  - High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate; and
  - Weather conditions that may cause hazardous substances, pollutants, or contaminants to migrate or be released.
- An appropriate water treatment system should be installed at the residence yielding lead samples with results exceeding the lead MCL.
  - Engineered control measures should be put in place to keep mine tailings from migrating off the mine property. These measures should include reconfiguration of the mine tailing's containment berm along Blackjack Road to a less severe angle to allow stabilization measures to be implemented effectively and to contain water runoff as well as vegetation of the mine berm.

---

## FIGURES

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Image Source:  
NGS Topo US 2D



#### Legend

USGS Quad: Bellevue

0 2,000  
Feet



Prepared for:  
U.S. EPA REGION V

Contract No.: EP-S5-06-04  
TDD: S05-0001-0909-011  
DCN: 767-2A-AFJA

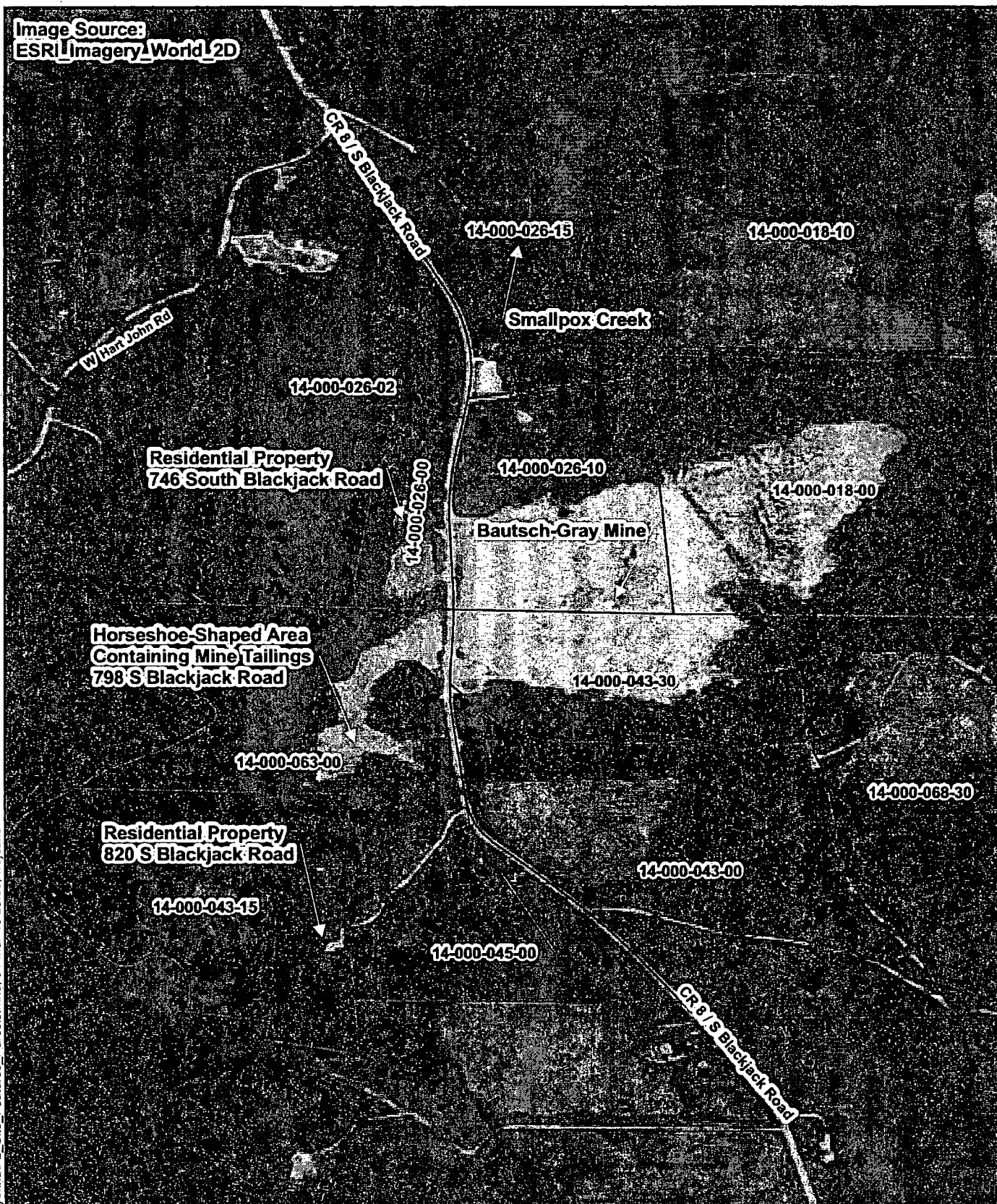


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**Figure 1**  
Site Location Map  
Bausch-Gray Mine Site  
Jo Daviess County, Illinois


Image Source:  
ESRI Imagery World 2D



File: D:\Bautsch\_Grey\mxd\F2\_Site\_Features\_Parcel.mxd, 04-Mar-10 20:03, wjldakon

# Legend

 Parcel Boundaries

0 500  
 Feet



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**Figure 2**  
Site Features Map  
Bautsch-Gray Mine Site  
Jo Daviess County, Illinois

Imagery Source:  
ESRI Imagery World 2D



# Legend

## Lead Results

- 0 - 400 ppm
- 400 - 800 ppm
- 800 - 1,200 ppm
- > 1,200 ppm



**NOTES:**  
Lead results provided by  
U.S. EPA FIELDS



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**Figure 3**  
XRF Sampling Locations and Lead Results  
Bautsch-Gray Mine Site  
Jo Daviess County, Illinois



Image Source:  
ESRI Imagery World 2D

RW-01

SW-01

CR 8

SW-02

RW-02

### Legend

#### Sampling Locations

- Residential Well
- Surface Water

0 400  
Feet



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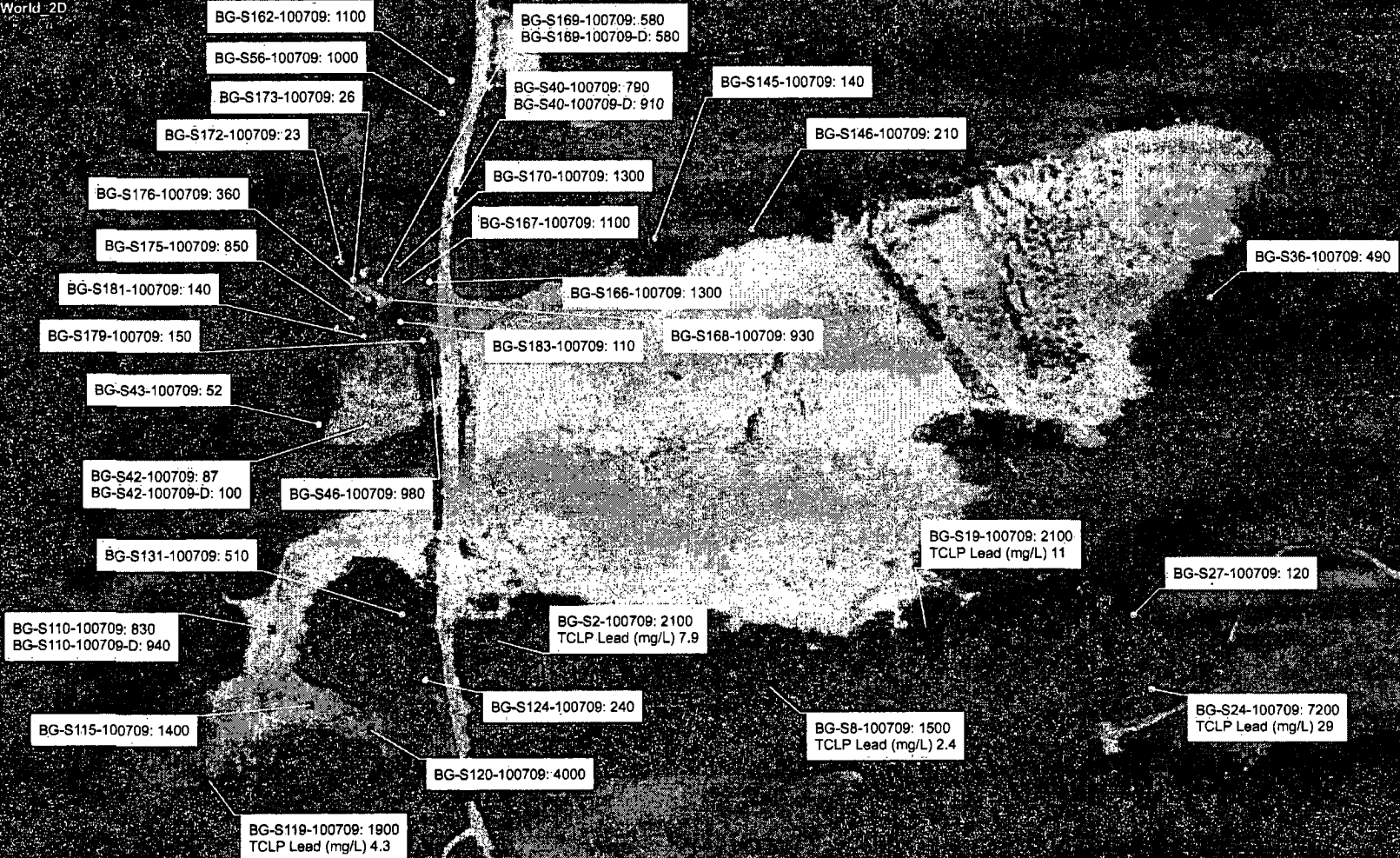


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**Figure 4**  
Residential Well and  
Surface Water Sampling Locations  
Bautsch-Gray Mine Site  
Jo Daviess County, Illinois

Imagery Source:  
ESRI Imagery World 2D



# Legend

## Sampling Locations by Type

- Soil
- Tailings

0 300  
Feet

## NOTES:

All results are for Total Lead in mg/kg  
(except were noted)



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## Figure 5

Laboratory Lead Results  
Bausch-Gray Mine Site  
Jo Daviess County, Illinois

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## TABLES

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**Table I-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Analyte	U.S. EPA ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)	Sample ID	BG-S001-100509	BG-S002-100509	BG-S003-100509	BG-S004-100509	BG-S005-100509	BG-S006-100509	BG-S007-100509
			Date Collected	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type	Tailings	Tailings	Soil	Tailings	Soil	mixture	Tailings
Arsenic	25	---		50	101	ND	49	ND	35	44
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	ND	ND	ND
Lead <sup>1</sup>	400	400		1,288	2,189	235	1,276	2,403	1,377	1,580
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		6,021	3,475	536	2,205	2,861	3,201	8,285

Analyte	U.S. EPA ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)	Sample ID	BG-S008-100509	BG-S009-100509	BG-S010-100509	BG-S011-100509	BG-S012-100509	BG-S013-100509	BG-S014-100509
			Date Collected	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type	Tailings	Tailings	Tailings	Soil	Mixture	Soil	Tailings
Arsenic	25	---		101	58	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	ND	ND	ND
Lead <sup>1</sup>	400	400		1,725	1,458	1,389	143	656	87	823
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,510	4,252	3,382	297	1,634	147	1,140

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S015-100509	BG-S016-100509	BG-S017-100509	BG-S018-100509	BG-S019-100509	BG-S020-100509	BG-S021-100509
			Date Collected	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type	Tailings	Tailings	Tailings	Tailings	Tailings	Tailings	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	—		85	87	ND	ND	62	760	101
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	220	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	ND	ND	ND
Lead <sup>1</sup>	400	400		1,562	2,111	1,324	1,620	2,392	9,577	3600
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	526	ND
Zinc		23,000		4,578	2,403	4,098	3,808	7,563	219,165	7,373

			Sample ID	BG-S022-100509	BG-S023-100509	BG-S024-100609	BG-S025-100609	BG-S026-100609	BG-S027-100609	BG-S028-100609
			Date Collected	10/05/2009	10/05/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009
			Location	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type	Tailings	Soil	Soil	Soil	Soil	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	—		ND	39	186	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	279	ND
Cadmium		70		ND	ND	90	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	83	ND	ND	ND	ND
Lead <sup>1</sup>	400	400		1,114	461	7,383	805	204	108	221
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	91	ND	ND	ND	ND
Zinc		23,000		7,253	3,475	35,438	3,338	398	195	433

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S029-100609	BG-S030-100609	BG-S031-100609	BG-S032-100609	BG-S033-100609	BG-S034-100609	BG-S035-100609
			Date Collected	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009
			Location	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type	Tailings	Soil	Tailings	Soil	Tailings	Soil	Tailings
Analyte	U.S. EPA WATS DR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	—		ND	57	28	ND	59	31	54
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	ND	ND	ND
Lead <sup>1</sup>	400	400		1,345	1,361	657	188	874	740	615
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,667	3,682	3,288	837	9,406	3,278	4,552

			Sample ID	BG-S036-100609	BG-S037-100609	BG-S038-100609	BG-S039-100609	BG-S040-100609	BG-S041-100709	BG-S042-100709
			Date Collected	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/07/2009	10/07/2009
			Location	Mine property	Blackjack Road	Blackjack Road	Blackjack Road	Blackjack Road	Residential area	Residential area
			Sample Type	Soil	Soil	Soil	Tailings	Tailings	Soil	Soil
Analyte	U.S. EPA WATS DR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	—		50	ND	ND	ND	ND	44	ND
Barium		15,000		ND	ND	ND	ND	ND	1149	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	ND	ND	23
Lead <sup>1</sup>	400	400		620	480	263	840	765	423	96
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,397	1,235	1,291	2,015	1,682	1,205	293

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S043-100709	BG-S044-100709	BG-S045-100709	BG-S046-100709	BG-S047-100709	BG-S048-100709	BG-S049-100709
			Date Collected	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
			Location	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area
			Sample Type	Soil	Soil	Soil	Tailings	Soil	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	1474	ND	1024	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	27	46	ND
Lead <sup>1</sup>	400	400		43	58	85	1,258	58	217	77
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		154	220	481	7,282	201	1,164	563

			Sample ID	BG-S050-100709	BG-S051-100709	BG-S052-100709	BG-S053-100709	BG-S054-100709	BG-S055-100709	BG-S056-100709
			Date Collected	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
			Location	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area
			Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	10	12	ND	ND	ND
Barium		15,000		ND	1077	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	118	ND	ND	ND	ND	ND
Copper		3,100		44	50	28	ND	23	31	ND
Lead <sup>1</sup>	400	400		513	1,340	69	140	90	75	1,345
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		2,244	2,278	186	254	189	264	3,278

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S057-100709	BG-S058-100709	BG-S059-100709	BG-S101-100509	BG-S102-100509	BG-S103-100509	BG-S104-100509
			Date Collected	10/07/2009	10/07/2009	10/07/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Residential area	Residential area	Residential area	Horseshoe area	Horseshoe area	Residential area	Horseshoe area
			Sample Type	Soil	Soil	Soil	Tailings	Tailings	Soil	Tailings
Analyte	U.S. EPA/AESDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		1246	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	35	ND	43	38	65	ND
Lead <sup>1</sup>	400	400		232	357	282	1,297	1,581	2,178	1,310
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		924	1,659	1,163	4,846	3,222	5,245	4,678

			Sample ID	BG-S105-100509	BG-S106-100509	BG-S107-100509	BG-S108-100509	BG-S109-100509	BG-S110-100509	BG-S111-100509
			Date Collected	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area
			Sample Type	Tailings	Tailings	Tailings	Tailings	Soil	Tailings	Tailings
Analyte	U.S. EPA/AESDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	31	ND	36	147	ND	47
Lead <sup>1</sup>	400	400		1,186	1,751	1,459	1,144	2,960	1,080	1,968
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,275	3,370	3,392	3,126	8,329	3,034	4,482

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S112-100509	BG-S113-100509	BG-S114-100509	BG-S115-100509	BG-S116-100509	BG-S117-100509	BG-S118-100509
			Date Collected	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area
			Sample Type	Mixture	Soil	Tailings	Tailings	Tailings	Tailings	Tailings
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	10	ND	ND	ND	ND	ND
Barium		15,000		ND	767	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		174	25	68	67	281	56	40
Lead <sup>1</sup>	400	400		3,063	61	2,299	1,499	2,305	1,816	1,181
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		9,844	198	5,405	4,597	14,090	5,137	4,008

			Sample ID	BG-S119-100509	BG-S120-100509	BG-S121-100509	BG-S122-100509	BG-S123-100509	BG-S124-100509	BG-S125-100509
			Date Collected	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area
			Sample Type	Tailings	Tailings	Soil	Soil	Soil	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	926	ND	ND	ND
Cadmium		70		ND	ND	ND	45	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		125	95	33	24	ND	ND	24
Lead <sup>1</sup>	400	400		2,007	2,673	2,511	230	200	208	77
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		7,309	7,852	3,990	520	558	491	149

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID:	BG-S126-100509	BG-S127-100509	BG-S128-100509	BG-S129-100509	BG-S130-100509	BG-S131-100509	BG-S132-100509
			Date Collected:	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location:	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area
			Sample Type:	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	993	ND	879
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	103	ND	ND
Copper		3,100		31	29	ND	ND	ND	ND	ND
Lead	400	400	446	103	90	122	133	358	120	
Mercury		4.3		ND	ND	ND	9	ND	10	
Selenium		390		ND	ND	ND	ND	ND	ND	
Silver		390		ND	ND	ND	ND	ND	ND	
Zinc		23,000		871	212	213	279	278	710	226

			Sample ID:	BG-S133-100509	BG-S134-100509	BG-S135-100509	BG-S136-100509	BG-S137-100509	BG-S138-100509	BG-S139-100509
			Date Collected:	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009	10/05/2009
			Location:	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area
			Sample Type:	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	35	ND
Barium		15,000		ND	ND	ND	1,233	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	40	ND	24	ND	26	ND
Lead	400	400	140	3,477	99	169	161	760	293	
Mercury		4.3		ND	ND	ND	ND	ND	ND	
Selenium		390		ND	ND	ND	ND	ND	ND	
Silver		390		ND	ND	ND	ND	ND	ND	
Zinc		23,000		257	6,970	205	292	291	1,614	ND

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID:	BG-S140-100609	BG-S141-100609	BG-S142-100609	BG-S143-100609	BG-S144-100609	BG-S145-100609	BG-S146-100609
			Date Collected:	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009
			Location:	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type:	Tailings	Soil	Tailings	Soil	Tailings	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	45	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	803	1,008
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		38	ND	50	61	50	ND	ND
Lead <sup>1</sup>	400	400		1,265	114	1,243	1,519	1,033	145	250
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,862	367	4,386	4,800	3,627	344	485

			Sample ID:	BG-S147-100609	BG-S148-100609	BG-S149-100609	BG-S150-100609	BG-S151-100609	BG-S152-100609	BG-S153-100609
			Date Collected:	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009
			Location:	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
			Sample Type:	Tailings	Tailings	Soil	Tailings	Soil	Tailings	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		30	45	ND	67	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	62	ND	74	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		39	73	26	ND	ND	421	35
Lead <sup>1</sup>	400	400		813	997	146	1,715	537	1,778	353
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,723	3,791	293	3,343	1,518	16,944	1,750



**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bäutsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S154-100609	BG-S155-100609	BG-S156-100609	BG-S157-100609	BG-S158-100609	BG-S159-100609	BG-S160-100609
			Date Collected	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009	10/06/2009
			Location	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property	West Side of
			Sample Type	Tailings	Soil	Tailings	Soil	Tailings	Soil	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		46	16	58	34	38	33	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		42	ND	42	41	51	ND	ND
Lead	400	400		685	230	738	394	732	306	93
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		4,932	1,484	3,874	3,202	4,392	2,173	497

			Sample ID	BG-S161-100609	BG-S162-100609	BG-S163-100609	BG-S164-100709	BG-S165-100709	BG-S166-100709	BG-S167-100709
			Date Collected	10/06/2009	10/06/2009	10/06/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
			Location	Blackjack Road	Blackjack Road	Residential area	Residential area	Residential area	Residential area	Residential area
			Sample Type	Soil	Soil	Soil	Soil	Tailings	Soil	Tailings
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	22	46	37	36	32
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	47	ND	32	38	ND	34
Lead	400	400		217	1,147	340	693	1,011	952	1,013
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		1,171	3,017	1,672	1,839	3,774	1,580	2,560

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S168-100709	BG-S169-100709	BG-S170-100709	BG-S171-100709	BG-S172-100709	BG-S173-100709	BG-S174-100709
			Date Collected	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
			Location	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area
			Sample Type	Soil	Soil	Tailings	Soil	Soil	Soil	Soil
Analyte	U.S. EPA/AI SDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		27	ND	ND	ND	ND	ND	ND
Lead <sup>1</sup>	400	400		1,005	691	971	682	35	27	188
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		2,204	4,065	2,258	1,720	92	72	847

			Sample ID	BG-S175-100709	BG-S176-100709	BG-S177-100709	BG-S178-100709	BG-S179-100709	BG-S180-100709	BG-S181-100709
			Date Collected	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
			Location	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area
			Sample Type	Soil	Soil	Soil	Tailings	Soil	Soil	Soil
Analyte	U.S. EPA/AI SDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		ND	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	ND	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		ND	ND	ND	ND	ND	ND	22
Lead <sup>1</sup>	400	400		639	271	272	1,092	209	98	150
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		782	1,396	710	2,803	569	426	443

**Table 1-A**  
**XRF Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

			Sample ID	BG-S182-100709	BG-S183-100709	BG-S184-100709	BG-S185-100709	BG-S186-100709	BG-S187-100709	BG-S188-100709
			Date Collected	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
			Location	Residential area	Residential area	Ravine South of	Ravine South of	Ravine South of	Ravine South of	Ravine South of
			Sample Type	Soil	Soil	Tailings	Tailings	Soil	Tailings	Soil
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)								
Arsenic	25	---		36	ND	ND	ND	ND	ND	ND
Barium		15,000		ND	ND	ND	ND	ND	ND	ND
Cadmium		70		ND	ND	ND	ND	ND	60	ND
Chromium		280		ND	ND	ND	ND	ND	ND	ND
Copper		3,100		103	ND	ND	113	ND	109	54
Lead <sup>1</sup>	400	400		1,059	83	1,447	2,529	180	2,544	1,826
Mercury		4.3		ND	ND	ND	ND	ND	ND	ND
Selenium		390		ND	ND	ND	ND	ND	ND	ND
Silver		390		ND	ND	ND	ND	ND	ND	ND
Zinc		23,000		3,029	229	2,590	8,564	841	9,748	5,416

			Sample ID	BG-S189-100709	BG-S190-100709	BG-S500-100709
			Date Collected	10/07/2009	10/07/2009	10/07/2009
			Location	Horseshoe area	Horseshoe area	Residential area
			Sample Type	mixture	mixture	Tailings
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)				
Arsenic	25	---		ND	81	ND
Barium		15,000		ND	ND	ND
Cadmium		70		ND	ND	ND
Chromium		280		ND	ND	ND
Copper		3,100		157	123	31
Lead <sup>1</sup>	400	400		3,716	3,915	968
Mercury		4.3		ND	ND	ND
Selenium		390		ND	ND	ND
Silver		390		ND	ND	ND
Zinc		23,000		9,804	8,662	2,514

Notes:

Gray shaded data exceed one or more screening levels.

Yellow highlighed values exceed removal action level of 1,200 ppm for lead as well as cleanup objective of 400 ppm for lead.

ATSDR = Agency for Toxic Substances & Disease Registry

ID = Identification

mg/kg = Milligram per kilogram

ND = Not detected

ppm = Part per million

RSL = Regional Screening Level

U.S. EPA = United States Environmental Protection Agency

XRF = X-ray fluorescence

--- = Not applicable

<sup>1</sup> = XRF lead value adjusted based on regression analysis to laboratory lead value

**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

				Client Sample ID :	BG-S2-100709	BG-S8-100709	BG-S19-100709	BG-S24-100709	BG-S27-100709	BG-S36-100709
				Area Collected:	Mine property	Mine property	Mine property	Mine property	Mine property	Mine property
				Sample Type:	Tailings	Tailings	Tailings	Soil	Soil	Soil
				Date Collected :	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA/RSI for Residential Soils (mg/kg)	TCLP Screening Level (mg/L)							
<b>Total Metals (mg/kg)</b>										
Arsenic	25	---		20	23	45	56	5.9	64	
Barium		15,000		18	20	22	39	120	32	
Cadmium		70		14	18	22	120	< 0.7	12	
Chromium		280		1.9	4.2	4.2	5.3	13	2.1	
Copper		3,100		7.3	14	120	43	13	51	
Lead	400	400		2,100	1,500	2,100	7,200	120	490	
Mercury		4.3		0.033	< 0.027	0.034	0.09	< 0.032	0.062	
Selenium		390		< 1	< 1	< 1.1	< 1.2	< 1.4	< 1.4	
Silver		390		< 1	< 1	< 1.1	3.2	< 1.4	< 1.4	
Zinc		23,000		5,700	12,000	9,100	68,000	320	4,300	
<b>TCLP Metals (mg/L)</b>										
Arsenic			5	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	
Barium			100	0.082	0.18	0.11	0.38	NA	NA	
Cadmium			1	0.049	0.022	0.093	0.33	NA	NA	
Chromium			5	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	
Copper			---	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	
Lead			5	7.9	2.4	11	29	NA	NA	
Mercury			0.2	< 0.00025	< 0.00025	< 0.00025	< 0.00025	NA	NA	
Selenium			1	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	
Silver			5	< 0.01	< 0.01	< 0.01	< 0.01	NA	NA	
Zinc			---	24	7.1	27	210	NA	NA	

**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

				Client Sample ID :	BG-S40-100709	BG-S42-100709	BG-S43-100709	BG-S46-100709	BG-S56-100709	BG-S110-100709
				Area Collected:	E. of Blackjack Rd.	Residential area	Residential area	Residential area	Residential area	Horseshoe area
				Sample Type:	Tailings	Soil	Soil	Tailings	Soil	Tailings
				Date Collected :	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)	TCLP Screening Level (mg/L)							
<b>Total Metals (mg/kg)</b>										
Arsenic	25	---		51	10	6.4	43	23	39	
Barium		15,000		9.3	470	150	8.5	20	10	
Cadmium		70		11	1.7	< 0.78	16	200	11	
Chromium		280		1.4	21	19	1.4	3.7	1.3	
Copper		3,100		42	21	19	33	12	27	
Lead	400	400		790	87	52	980	1,000	830	
Mercury		4.3		< 0.029	0.036	0.046	< 0.027	0.041	< 0.026	
Selenium		390		< 1.1	< 1.3	< 1.6	< 1	< 1	< 1	
Silver		390		< 1.1	< 1.3	< 1.6	< 1	11	< 1	
Zinc		23,000		4,100	580	320	5,900	72,000	4,100	
<b>TCLP Metals (mg/L)</b>										
Arsenic			5	NA	NA	NA	NA	NA	NA	
Barium			100	NA	NA	NA	NA	NA	NA	
Cadmium			1	NA	NA	NA	NA	NA	NA	
Chromium			5	NA	NA	NA	NA	NA	NA	
Copper			---	NA	NA	NA	NA	NA	NA	
Lead			5	NA	NA	NA	NA	NA	NA	
Mercury			0.2	NA	NA	NA	NA	NA	NA	
Selenium			1	NA	NA	NA	NA	NA	NA	
Silver			5	NA	NA	NA	NA	NA	NA	
Zinc			---	NA	NA	NA	NA	NA	NA	

**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

				Client Sample ID :	BG-S115-100709	BG-S119-100709	BG-S120-100709	BG-S124-100709	BG-S131-100709	BG-S145-100709
				Area Collected:	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Horseshoe area	Mine property
				Sample Type:	Tailings	Tailings	Tailings	Soil	Soil	Soil
				Date Collected :	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
Analyte	U.S. EPA VCL (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)	TCLP Screening Level (mg/l)							
<b>Total Metals (mg/kg)</b>										
Arsenic	25	---		49	41	63	9.9	14	11	
Barium		15,000		12	17	31	190	220	150	
Cadmium		70		14	18	28	2.3	4.1	< 0.64	
Chromium		280		1.9	3.4	4.7	21	17	19	
Copper		3,100		58	100	160	22	31	20	
Lead	400	400		1,400	1,900	4,000	240	510	140	
Mercury		4.3		0.027	0.041	0.057	0.057	0.048	< 0.032	
Selenium		390		< 1	< 0.95	< 1.2	< 1.4	< 1.4	< 1.3	
Silver		390		< 1	< 0.95	< 1.2	< 1.4	< 1.4	< 1.3	
Zinc		23,000		6,300	7,900	13,000	980	1,700	610	
<b>TCLP Metals (mg/L)</b>										
Arsenic			5	NA	< 0.01	NA	NA	NA	NA	
Barium			100	NA	< 0.05	NA	NA	NA	NA	
Cadmium			1	NA	0.28	NA	NA	NA	NA	
Chromium			5	NA	< 0.01	NA	NA	NA	NA	
Copper			---	NA	0.26	NA	NA	NA	NA	
Lead			5	NA	4.3	NA	NA	NA	NA	
Mercury			0.2	NA	< 0.00025	NA	NA	NA	NA	
Selenium			1	NA	< 0.01	NA	NA	NA	NA	
Silver			5	NA	< 0.01	NA	NA	NA	NA	
Zinc			---	NA	120	NA	NA	NA	NA	

**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

				Client Sample ID :	BG-S146-100709	BG-S162-100709	BG-S166-100709	BG-S167-100709	BG-S168-100709	BG-S169-100709
				Area Collected:	Mine property	W. of Blackjack Rd.	Residential area	Residential area	Residential area	Residential area
				Sample Type:	Soil	Soil	Soil	Tailings	Soil	Soil
				Date Collected :	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
Analyte	U.S. EPA Valsdr. Cleanup Objective (mg/kg)	U.S. EPA RSE for Residential Soils (mg/kg)	TCLP Screening Level (mg/L)							
<b>Total Metals (mg/kg)</b>										
Arsenic	25	---		12	44	24	66	18	25	
Barium		15,000		120	14	160	11	120	120	
Cadmium		70		2.1	12	5.7	14	9.1	8.4	
Chromium		280		18	2.1	6.5	1.9	12	11	
Copper		3,100		23	51	26	58	31	25	
Lead	400	400		210	1,100	1,300	1,100	930	580	
Mercury		4.3		< 0.031	< 0.031	0.18	0.027	0.051	0.067	
Selenium		390		< 1.2	< 1.2	< 1.3	< 0.93	< 1.2	< 1.2	
Silver		390		< 1.2	< 1.2	< 1.3	< 0.93	< 1.2	< 1.2	
Zinc		23,000		1,000	4,300	3,000	4,700	3,600	3,800	
<b>TCLP Metals (mg/L)</b>										
Arsenic			5	NA	NA	NA	NA	NA	NA	
Barium			100	NA	NA	NA	NA	NA	NA	
Cadmium			1	NA	NA	NA	NA	NA	NA	
Chromium			5	NA	NA	NA	NA	NA	NA	
Copper			---	NA	NA	NA	NA	NA	NA	
Lead			5	NA	NA	NA	NA	NA	NA	
Mercury			0.2	NA	NA	NA	NA	NA	NA	
Selenium			1	NA	NA	NA	NA	NA	NA	
Silver			5	NA	NA	NA	NA	NA	NA	
Zinc			---	NA	NA	NA	NA	NA	NA	

**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

				Client Sample ID :	BG-S170-100709	BG-S172-100709	BG-S173-100709	BG-S175-100709	BG-S176-100709	BG-S179-100709
				Area Collected:	Residential area	Residential area	Residential area	Residential area	Residential area	Residential area
				Sample Type:	Tailings	Soil	Soil	Soil	Soil	Soil
				Date Collected :	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA RSL for Residential Soils (mg/kg)	TCLP Screening Level (mg/L)							
<b>Total Metals (mg/kg)</b>										
Arsenic	25	---	50	50	4.4	3.9	15	15	11	
Barium		15,000	13	190	190	260	200	210		
Cadmium		70	12	< 0.59	< 0.56	4	15	1.5		
Chromium		280	1.9	16	15	12	12	29		
Copper		3,100	38	13	13	15	15	28		
Lead	400	400	1,300	23	26	850	360	150		
Mercury		4.3	< 0.025	< 0.029	< 0.03	0.056	0.053	0.055		
Selenium		390	< 1	< 1.2	< 1.1	< 1.1	< 1.2	< 1.2		
Silver		390	< 1	< 1.2	< 1.1	< 1.1	< 1.2	< 1.2		
Zinc		23,000	4,300	81	83	1,600	5,300	650		
<b>TCLP Metals (mg/L)</b>										
Arsenic			5	NA	NA	NA	NA	NA	NA	
Barium			100	NA	NA	NA	NA	NA	NA	
Cadmium			1	NA	NA	NA	NA	NA	NA	
Chromium			5	NA	NA	NA	NA	NA	NA	
Copper			---	NA	NA	NA	NA	NA	NA	
Lead			5	NA	NA	NA	NA	NA	NA	
Mercury			0.2	NA	NA	NA	NA	NA	NA	
Selenium			1	NA	NA	NA	NA	NA	NA	
Silver			5	NA	NA	NA	NA	NA	NA	
Zinc			---	NA	NA	NA	NA	NA	NA	



**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

				Client Sample ID :	BG-S181-100709	BG-S183-100709	BG-S42-100709-D	BG-S40-100709-D	BG-S169-100709-D
				Area Collected:	Residential area	Residential area	Residential area	East Side of	Residential area
				Sample Type:	Soil	Soil	Soil	Tailings	Soil
				Date Collected :	10/07/2009	10/07/2009	10/07/2009	10/07/2009	10/07/2009
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA/RSI for Residential Soils (mg/kg)	TCLP Screening Level (mg/L)						
<b>Total Metals (mg/kg)</b>									
Arsenic	25	---		6.4	7.5	9.6	46	16	
Barium		15,000		110	210	260	7.6	170	
Cadmium		70		< 0.65	< 0.69	< 0.62	9.9	11	
Chromium		280		16	20	21	1.3	13	
Copper		3,100		17	20	18	33	30	
Lead	400	400		140	110	100	910	580	
Mercury		4.3		0.033	< 0.033	< 0.033	< 0.029	0.076	
Selenium		390		< 1.3	< 1.4	< 1.2	< 1	< 1.3	
Silver		390		< 1.3	< 1.4	< 1.2	< 1	< 1.3	
Zinc		23,000		600	450	570	3,600	5,300	
<b>TCLP Metals (mg/L)</b>									
Arsenic			5	NA	NA	NA	NA	NA	
Barium			100	NA	NA	NA	NA	NA	
Cadmium			1	NA	NA	NA	NA	NA	
Chromium			5	NA	NA	NA	NA	NA	
Copper			---	NA	NA	NA	NA	NA	
Lead			5	NA	NA	NA	NA	NA	
Mercury			0.2	NA	NA	NA	NA	NA	
Selenium			1	NA	NA	NA	NA	NA	
Silver			5	NA	NA	NA	NA	NA	
Zinc			---	NA	NA	NA	NA	NA	

**Table 1-B**  
**Analytical Results for Metals - Surface Soil**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

		Client Sample ID :	BG-S110-100709-D	
		Area Collected:	Horseshoe area	
		Sample Type:	Tailings	
		Date Collected :	10/07/2009	
Analyte	U.S. EPA/ATSDR Cleanup Objective (mg/kg)	U.S. EPA/RSL for Residential Soils (mg/kg)	TCLP Screening Level (mg/L)	
<b>Total Metals (mg/kg)</b>				
Arsenic	25	---		50
Barium		15,000		11
Cadmium		70		11
Chromium		280		1.7
Copper		3,100		30
Lead	400	400		940
Mercury		4.3		< 0.026
Selenium		390		< 0.91
Silver		390		< 0.91
Zinc		23,000		3,400
<b>TCLP Metals (mg/L)</b>				
Arsenic			5	NA
Barium			100	NA
Cadmium			1	NA
Chromium			5	NA
Copper			---	NA
Lead			5	NA
Mercury			0.2	NA
Selenium			1	NA
Silver			5	NA
Zinc			---	NA

Notes:

Gray shaded data exceeds one or more screening levels.

Yellow highlighted values exceed removal action level of 1,200 ppm for lead as well as cleanup objective of 400 ppm for lead.

ATSDR = Agency for Toxic Substances & Disease Registry

ID = Identification

mg/kg = Milligram per kilogram

mg/L = Milligram per liter

< = Less than

--- = Not available or applicable

NA = Not analyzed

ppm = Part per million

RSL = Regional Screening Level

U.S. EPA = United States Environmental Protection Agency

**Table 2-A**  
**Analytical Results for Metals - Residential Well Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-RW01-100609	BG-RW02-100609	BG-RW02-100609-D
	Sampling Date	October 6, 2009	October 6, 2009	October 6, 2009
	Sample Matrix	Water	Water	Water
	Sampling Location	746 S. Blackjack Rd.	820 S. Blackjack Rd.	Field Duplicate of RW02
pH	SU	6.95	7.01	7.09
<b>Metals</b>				
Aluminum, Total	mg/L	<0.10	<0.10	<0.10
Antimony, Total	mg/L	<0.0020	<0.0020	<0.0020
Arsenic, Total	mg/L	<0.0010	<0.0014	<b>0.0014</b>
Barium, Total	mg/L	<b>0.016</b>	<b>0.016</b>	<b>0.017</b>
Beryllium, Total	mg/L	<0.0010	<0.0010	<0.0010
Cadmium, Total	mg/L	<b>0.0011 J+</b>	<0.00050	<0.00050
Calcium, Total	mg/L	<b>280</b>	<b>170</b>	<b>180</b>
Chromium, Total	mg/L	<0.0050	<0.0050	<0.0050
Cobalt, Total	mg/L	<0.0010	<b>0.00080 J</b>	<b>0.00079 J</b>
Copper, Total	mg/L	<b>0.021</b>	<0.0020	<b>0.0012 J</b>
Iron, Total	mg/L	<0.10	<b>2.1</b>	<b>2.2</b>
Lead, Total	mg/L	<b>0.027</b>	<b>0.00079</b>	<b>0.0016</b>
Magnesium, Total	mg/L	<b>97</b>	<b>85</b>	<b>88</b>
Manganese, Total	mg/L	<b>0.0030</b>	<b>0.18</b>	<b>0.18</b>
Mercury, Total	mg/L	<0.00020	<0.00020	<0.00020
Nickel, Total	mg/L	<b>0.0024</b>	<b>0.0030</b>	<b>0.0029</b>
Potassium, Total	mg/L	<b>1.5</b>	<b>1.4</b>	<b>1.5</b>
Selenium, Total	mg/L	<0.0025	<0.0025	<0.0025
Silver, Total	mg/L	<0.00050	<0.00050	<0.00050
Sodium, Total	mg/L	<b>7.8</b>	<b>6.6</b>	<b>6.8</b>
Thallium, Total	mg/L	<b>0.00054 J</b>	<0.0020	<0.0020
Vanadium, Total	mg/L	<0.0050	<0.0050	<0.0050
Zinc, Total	mg/L	<b>1.2</b>	<b>0.60</b>	<b>0.62</b>

Notes:

**Bolded results exceed the reporting limit**

**Yellow highlighted results exceed maximum contaminant level**

ID = Identification

J = Analyte detected below quantitative limit

J+ = Result should be considered estimated biased high

mg/L = Milligram per liter

SU = Standard unit

< = Less than

**Table 2-B**  
**Analytical Results for VOCs - Residential Well Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-RW01-100609	BG-RW02-100609	BG-RW02-100609-D
	Sampling Date	October 6, 2009	October 6, 2009	October 6, 2009
	Sample Matrix	Water	Water	Water
	Sampling Location	746 S. Blackjack Rd.	820 S. Blackjack Rd.	Field Duplicate of RW02
	Units			
<b>VOCs</b>				
1,1,1-Trichloroethane	mg/L	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	<0.0010	<0.0010	<0.0010
1,3-Dichloropropene, Total	mg/L	<0.0010	<0.0010	<0.0010
2-Hexanone	mg/L	<0.0050	<0.0050	<0.0050
4-Methyl-2-pentanone	mg/L	<0.0050	<0.0050	<0.0050
Acetone	mg/L	<0.0050	<0.0050	<0.0050
Benzene	mg/L	<0.0010	<0.0010	<0.0010
Bromodichloromethane	mg/L	<0.0010	<0.0010	<0.0010
Bromoform	mg/L	<0.0010	<0.0010	<0.0010
Bromomethane	mg/L	<0.0010 UJ	<0.0010 UJ	<0.0010 UJ
Carbon disulfide	mg/L	<0.0050	<0.0050	<0.0050
Carbon tetrachloride	mg/L	<0.0010	<0.0010	<0.0010
Chlorobenzene	mg/L	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	<0.0010	<0.0010	<0.0010
Chloroform	mg/L	<0.0010	<0.0010	<0.0010
Chloromethane	mg/L	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	<0.0010	<0.0010	<0.0010
Dibromochloromethane	mg/L	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	<0.0010	<0.0010	<0.0010
Methyl ethyl ketone	mg/L	<0.0050	<0.0050	<0.0050
Methyl tert-butyl ether	mg/L	<0.0010	<0.0010	<0.0010
Methylene chloride	mg/L	<0.0020	<0.0020	<0.0020
Styrene	mg/L	<0.0010	<0.0010	<0.0010
Tetrachloroethene	mg/L	<0.0010	<0.0010	<0.0010
Toluene	mg/L	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	<0.0010	<0.0010	<0.0010
trans-1,3-Dichloropropene	mg/L	<0.0010	<0.0010	<0.0010
Trichloroethene	mg/L	<0.0010	<0.0010	<0.0010
Vinylchloride	mg/L	<0.0010	<0.0010	<0.0010
Xylene (Total)	mg/L	<0.0020	<0.0020	<0.0020

Notes:

ID = Identification  
mg/L = Milligram per liter  
< = Less than

UJ = Quantitation limit should be considered estimated  
VOC = Volatile organic compound

**Table 2-C**  
**Analytical Results for SVOCs - Residential Well Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-RW01-100609	BG-RW02-100609	BG-RW02-100609-D
	Sampling Date	October 6, 2009	October 6, 2009	October 6, 2009
	Sample Matrix	Water	Water	Water
	Sampling Location	746 S. Blackjack Rd.	820 S. Blackjack Rd.	Field Duplicate of RW02
	Units			
<b>SVOCs</b>				
1,2,4-Trichlorobenzene	mg/L	<0.0019	<0.0019	<0.0019
1,2-Dichlorobenzene	mg/L	<0.0019	<0.0019	<0.0019
1,3-Dichlorobenzene	mg/L	<0.0019	<0.0019	<0.0019
1,4-Dichlorobenzene	mg/L	<0.0019	<0.0019	<0.0019
2,4,5-Trichlorophenol	mg/L	<0.0094	<0.0093	<0.0093
2,4,6-Trichlorophenol	mg/L	<0.0047	<0.0047	<0.0047
2,4-Dichlorophenol	mg/L	<0.0094	<0.0093	<0.0093
2,4-Dimethylphenol	mg/L	<0.0094	<0.0093	<0.0093
2,4-Dinitrophenol	mg/L	<0.019	<0.019	<0.019
2,4-Dinitrotoluene	mg/L	<0.00094	<0.00093	<0.00093
2,6-Dinitrotoluene	mg/L	<0.00047	<0.00047	<0.00047
2-Chloronaphthalene	mg/L	<0.0019	<0.0019	<0.0019
2-Chlorophenol	mg/L	<0.0047	<0.0047	<0.0047
2-Methylnaphthalene	mg/L	<0.00047	<0.00047	<0.00047
2-Methylphenol	mg/L	<0.0019	<0.0019	<0.0019
2-Nitroaniline	mg/L	<0.0047	<0.0047	<0.0047
2-Nitrophenol	mg/L	<0.0094	<0.0093	<0.0093
3,3'-Dichlorobenzidine	mg/L	<0.0047	<0.0047	<0.0047
3-Nitroaniline	mg/L	<0.0094	<0.0093	<0.0093
4,3-Methylphenol(2)	mg/L	<0.0019	<0.0019	<0.0019
4,6-Dinitro-2-methylphenol	mg/L	<0.019	<0.019	<0.019
4-Bromophenyl-phenylether	mg/L	<0.0047	<0.0047	<0.0047
4-Chloro-3-methylphenol	mg/L	<0.0094	<0.0093	<0.0093
4-Chloroaniline	mg/L	<0.0094	<0.0093	<0.0093
4-Chlorophenyl-phenylether	mg/L	<0.0047	<0.0047	<0.0047
4-Nitroaniline	mg/L	<0.0094	<0.0093	<0.0093
4-Nitrophenol	mg/L	<0.019	<0.019	<0.019
Acenaphthene	mg/L	<0.0094	<0.00093	<0.00093
Acenaphthylene	mg/L	<0.00094	<0.00093	<0.00093
Anthracene	mg/L	<0.00094	<0.00093	<0.00093
Benz(a)anthracene	mg/L	<0.00012	<0.00012	<0.00012
Benzo(a)pyrene	mg/L	<0.00019	<0.00019	<0.00019
Benzo(b)fluoranthene	mg/L	<0.00017	<0.00017	<0.00017
Benzo(g,h,i)perylene	mg/L	<0.00094	<0.00093	<0.00093
Benzo(k)fluoranthene	mg/L	<0.00016	<0.00016	<0.00016
bis(2-Chloroethoxy)methane	mg/L	<0.0019	<0.0019	<0.0019
bis(2-Chloroethyl)ether	mg/L	<0.0019	<0.0019	<0.0019
bis(2-Chloroisopropyl)ether	mg/L	<0.0019	<0.0019	<0.0019
bis(2-Ethylhexyl)phthalate	mg/L	<0.0094	<0.0093	<0.0093

**Table 2-C**  
**Analytical Results for SVOCs - Residential Well Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-RW01-100609	BG-RW02-100609	BG-RW02-100609-D
	Sampling Date	October 6, 2009	October 6, 2009	October 6, 2009
	Sample Matrix	Water	Water	Water
	Sampling Location	746 S. Blackjack Rd.	820 S. Blackjack Rd.	Field Duplicate of RW02
	Units			
<b>SVOCs</b>				
Butyl benzyl phthalate	mg/L	<0.0019	<0.0019	<0.0019
Carbazole	mg/L	<0.0047	<0.0047	<0.0047
Chrysene	mg/L	<0.00047	<0.00047	<0.00047
Dibenz(a,h)anthracene	mg/L	<0.00028	<0.00028	<0.00028
Dibenzofuran	mg/L	<0.0019	<0.0019	<0.0019
Diethylphthalate	mg/L	<0.0019	<0.0019	<0.0019
Dimethyl phthalate	mg/L	<0.0019	<0.0019	<0.0019
Di-N-Butyl phthalate	mg/L	<0.0047	<0.0047	<0.0047
Di-N-Octyl phthalate	mg/L	<0.0094	<0.0093	<0.0093
Fluoranthene	mg/L	<0.00094	<0.00093	<0.00093
Fluorene	mg/L	<0.00094	<0.00093	<0.00093
Hexachlorobenzene	mg/L	<0.00047	<0.00047	<0.00047
Hexachlorobutadiene	mg/L	<0.0047	<0.0047	<0.0047
Hexachlorocyclopentadiene	mg/L	<0.019	<0.019	<0.019
Hexachloroethane	mg/L	<0.0047	<0.0047	<0.0047
Indeno(1,2,3-cd)pyrene	mg/L	<0.00019	<0.00019	<0.00019
Isophorone	mg/L	<0.0019	<0.0019	<0.0019
Naphthalene	mg/L	<0.00094	<0.00093	<0.00093
Nitrobenzene	mg/L	<0.00094	<0.00093	<0.00093
N-Nitroso-di-N-propylamine	mg/L	<0.00047	<0.0047	<0.0047
N-Nitrosodiphenylamine	mg/L	<0.00094	<0.00093	<0.00093
Pentachlorophenol	mg/L	<0.019	<0.019	<0.019
Phenanthrene	mg/L	<0.00094	<0.00093	<0.00093
Phenol	mg/L	<0.0047	<0.0047	<0.0047
Pyrene	mg/L	<0.00094	<0.00093	<0.00093

Notes:

ID = Identification

mg/L = Milligram per liter

SVOC = Semivolatile organic compound

< = Less than

**Table 3-A**  
**Analytical Results for Metals - Surface Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-SW01-100709	BG-SW02-100709
	Sampling Date	October 7, 2009	October 7, 2009
	Sample Matrix	Surface Water	Surface Water
pH	SU	7.27	7.60
<b>Metals</b>			
Aluminum, Total	mg/L	27	0.025 J
Antimony, Total	mg/L	0.0045 J	<0.0020
Arsenic, Total	mg/L	0.22	0.00029 J
Barium, Total	mg/L	0.18	0.022
Beryllium, Total	mg/L	0.0041	<0.0010
Cadmium, Total	mg/L	0.39	0.0012 J+
Calcium, Total	mg/L	1300	400
Chromium, Total	mg/L	0.047 J	<0.0050
Cobalt, Total	mg/L	0.19	0.0011
Copper, Total	mg/L	0.40	0.0037
Iron, Total	mg/L	230	0.25
Lead, Total	mg/L	63	0.020
Magnesium, Total	mg/L	260	64
Manganese, Total	mg/L	7.1	0.087
Mercury, Total	mg/L	0.00039	<0.00020
Nickel, Total	mg/L	0.37	0.016
Potassium, Total	mg/L	23	3.9
Selenium, Total	mg/L	0.050	<0.0025
Silver, Total	mg/L	<0.0073	<0.00050
Sodium, Total	mg/L	0.96	7.4
Thallium, Total	mg/L	0.0039 J	<0.0020
Vanadium, Total	mg/L	0.029	<0.0050
Zinc, Total	mg/L	130 J	3.2

Notes:

**Bolded results** exceed the reporting limit

**Yellow highlighted results** exceed the MCL

**Gray highlighted results** exceed the U.S. EPA RSL for tap water

**Blue highlighted results** exceed the U.S. EPA RSL for tap water and the MCL

ID = Identification

J = Analyte detected below quantitative limit

J+ = Result should be considered estimated biased high

MCL = Maximum contaminant level

mg/L = Milligram per liter

< = Less than

RSL = Regional Screening Level

SU = Standard unit

U.S. EPA = United States Environmental Protection Agency

**Table 3-B**  
**Analytical Results for VOCs - Surface Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-SW01-100709	BG-SW02-100709
	Sampling Date	October 7, 2009	October 7, 2009
	Sample Matrix	Surface Water	Surface Water
	Units		
<b>VOCs</b>			
1,1,1-Trichloroethane	mg/L	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	<0.0010	<0.0010
1,1,2-Trichloroethane	mg/L	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	<0.0010	<0.0010
1,3-Dichloropropene, Total	mg/L	<0.0010	<0.0010
2-Hexanone	mg/L	<0.0050	<0.0050
4-Methyl-2-pentanone	mg/L	<0.0050	<0.0050
Acetone	mg/L	<b>0.0071</b>	<0.0050
Benzene	mg/L	<0.0010	<0.0010
Bromodichloromethane	mg/L	<0.0010	<0.0010
Bromoform	mg/L	<0.0010	<0.0010
Bromomethane	mg/L	<0.0010 UJ	<0.0010 UJ
Carbon disulfide	mg/L	<0.0050	<0.0050
Carbon tetrachloride	mg/L	<0.0010	<0.0010
Chlorobenzene	mg/L	<0.0010	<0.0010
Chloroethane	mg/L	<0.0010	<0.0010
Chloroform	mg/L	<0.0010	<0.0010
Chloromethane	mg/L	<0.0010	<0.0010
cis-1,2-Dichloroethene	mg/L	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	<0.0010	<0.0010
Dibromochloromethane	mg/L	<0.0010	<0.0010
Ethylbenzene	mg/L	<0.0010	<0.0010
Methyl ethyl ketone	mg/L	<0.0050	<0.0050
Methyl tert-butyl ether	mg/L	<0.0010	<0.0010
Methylene chloride	mg/L	<0.0020	<0.0020
Styrene	mg/L	<0.0010	<0.0010
Tetrachloroethene	mg/L	<0.0010	<0.0010
Toluene	mg/L	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	<0.0010	<0.0010
trans-1,3-Dichloropropene	mg/L	<0.0010	<0.0010
Trichloroethene	mg/L	<0.0010	<0.0010
Vinylchloride	mg/L	<0.0010	<0.0010
Xylene (Total)	mg/L	<0.0020	<0.0020

Notes:

**Bolded results** exceed the reporting limit

ID = Identification

UJ = Quantitation limit should be considered estimated

mg/L = Milligram per liter

VOC = Volatile organic compound

< = Less than



**Table 3-C**  
**Analytical Results for SVOCs - Surface Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-SW01-100709	BG-SW02-100709
	Sampling Date	October 7, 2009	October 7, 2009
	Sample Matrix	Surface Water	Surface Water
	Units		
<b>SVOCs</b>			
1,2,4-Trichlorobenzene	mg/L	<0.0019	<0.0021
1,2-Dichlorobenzene	mg/L	<0.0019	<0.0021
1,3-Dichlorobenzene	mg/L	<0.0019	<0.0021
1,4-Dichlorobenzene	mg/L	<0.0019	<0.0021
2,4,5-Trichlorophenol	mg/L	<0.0096	<0.010
2,4,6-Trichlorophenol	mg/L	<0.0048	<0.0052
2,4-Dichlorophenol	mg/L	<0.0096	<0.010
2,4-Dimethylphenol	mg/L	<0.0096	<0.010
2,4-Dinitrophenol	mg/L	<0.019	<0.021
2,4-Dinitrotoluene	mg/L	<0.00096	<0.0010
2,6-Dinitrotoluene	mg/L	<0.00048	<0.00052
2-Chloronaphthalene	mg/L	<0.0019	<0.0021
2-Chlorophenol	mg/L	<0.0048	<0.0052
2-Methylnaphthalene	mg/L	<0.00048	<0.00052
2-Methylphenol	mg/L	<0.0019	<0.0021
2-Nitroaniline	mg/L	<0.0048	<0.0052
2-Nitrophenol	mg/L	<0.0096	<0.010
3,3'-Dichlorobenzidine	mg/L	<0.0048	<0.0052
3-Nitroaniline	mg/L	<0.0096	<0.010
4,3-Methylphenol(2)	mg/L	<0.0019	<0.0021
4,6-Dinitro-2-methylphenol	mg/L	<0.019	<0.021
4-Bromophenyl-phenylether	mg/L	<0.0048	<0.0052
4-Chloro-3-methylphenol	mg/L	<0.0096	<0.010
4-Chloroaniline	mg/L	<0.0096	<0.010
4-Chlorophenyl-phenylether	mg/L	<0.0048	<0.0052
4-Nitroaniline	mg/L	<0.0096	<0.010
4-Nitrophenol	mg/L	<0.019	<0.021
Acenaphthene	mg/L	<0.0096	<0.0010
Acenaphthylene	mg/L	<0.00096	<0.0010
Anthracene	mg/L	<0.00096	<0.0010
Benz(a)anthracene	mg/L	<0.00012	<0.00013
Benzo(a)pyrene	mg/L	<0.00019	<0.00021
Benzo(b)fluoranthene	mg/L	<0.00017	<0.00019
Benzo(g,h,i)perylene	mg/L	<0.00096	<0.0010
Benzo(k)fluoranthene	mg/L	<0.00016	<0.00018
bis(2-Chloroethoxy)methane	mg/L	<0.0019	<0.0021
bis(2-Chloroethyl)ether	mg/L	<0.0019	<0.0021
bis(2-Chloroisopropyl)ether	mg/L	<0.0019	<0.0021
bis(2-Ethylhexyl)phthalate	mg/L	<0.0096	<0.010
Butyl benzyl phthalate	mg/L	<0.0019	<0.0021
Carbazole	mg/L	<0.0048	<0.0052
Chrysene	mg/L	<0.00048	<0.00052
Dibenz(a,h)anthracene	mg/L	<0.00028	<0.00031
Dibenzofuran	mg/L	<0.0019	<0.0021

**Table 3-C**  
**Analytical Results for SVOCs - Surface Water**  
**Bautsch Gray Mine Site**  
**Jo Daviess County, Illinois**

Parameter	Sample ID	BG-SW01-100709	BG-SW02-100709
	Sampling Date	October 7, 2009	October 7, 2009
	Sample Matrix	Surface Water	Surface Water
	Units		
<b>SVOCs</b>			
Diethylphthalate	mg/L	<0.0019	<0.0021
Dimethyl phthalate	mg/L	<0.0019	<0.0021
Di-N-Butyl phthalate	mg/L	<0.0048	<0.0052
Di-N-Octyl phthalate	mg/L	<0.0096	<0.010
Fluoranthene	mg/L	<0.00096	<0.0010
Fluorene	mg/L	<0.00096	<0.0010
Hexachlorobenzene	mg/L	<0.00048	<0.00052
Hexachlorobutadiene	mg/L	<0.0048	<0.0052
Hexachlorocyclopentadiene	mg/L	<0.019	<0.021
Hexachloroethane	mg/L	<0.0048	<0.0052
Indeno(1,2,3-cd)pyrene	mg/L	<0.00019	<0.00019
Isophorone	mg/L	<0.0019	<0.0019
Naphthalene	mg/L	<0.00096	<0.0010
Nitrobenzene	mg/L	<0.00096	<0.0010
N-Nitroso-di-N-propylamine	mg/L	<0.00048	<0.00052
N-Nitrosodiphenylamine	mg/L	<0.00096	<0.0010
Pentachlorophenol	mg/L	<0.019	<0.021
Phenanthrene	mg/L	<0.00096	<0.0010
Phenol	mg/L	<0.0048	<0.0052
Pyrene	mg/L	<0.00096	<0.0010

Notes:

ID = Identification

mg/L = Milligram per liter

SVOC = Semivolatile organic compound

< = Less than

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**APPENDIX A**  
**PHOTOGRAPHIC DOCUMENTATION**

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**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 1

**Direction:** East

**Subject:** Vertical extent of tailings at the mine property

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

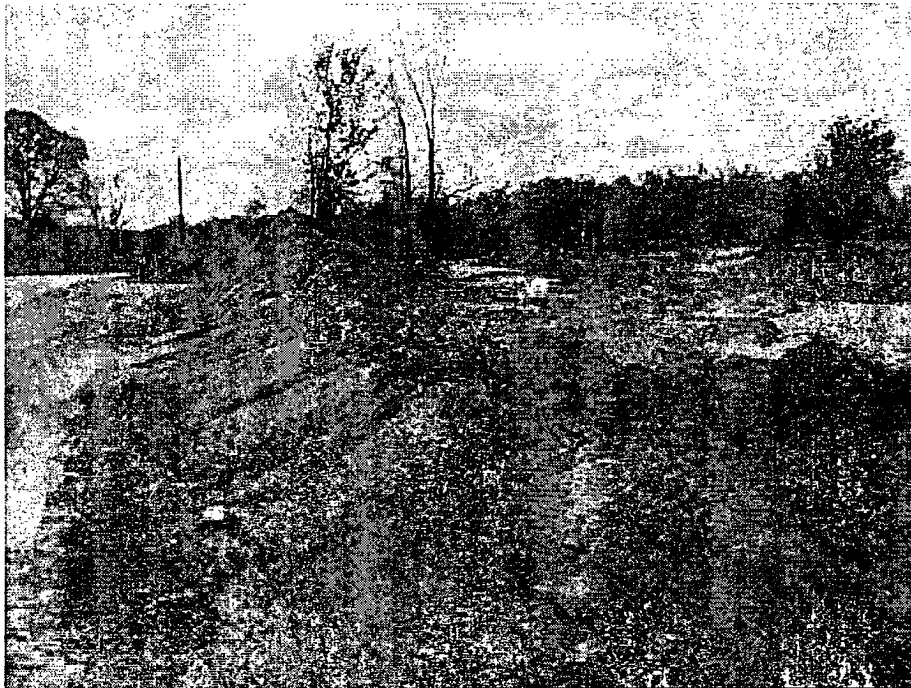
**Photograph No.:** 2

**Direction:** West

**Subject:** Mine tailing piles at mine property

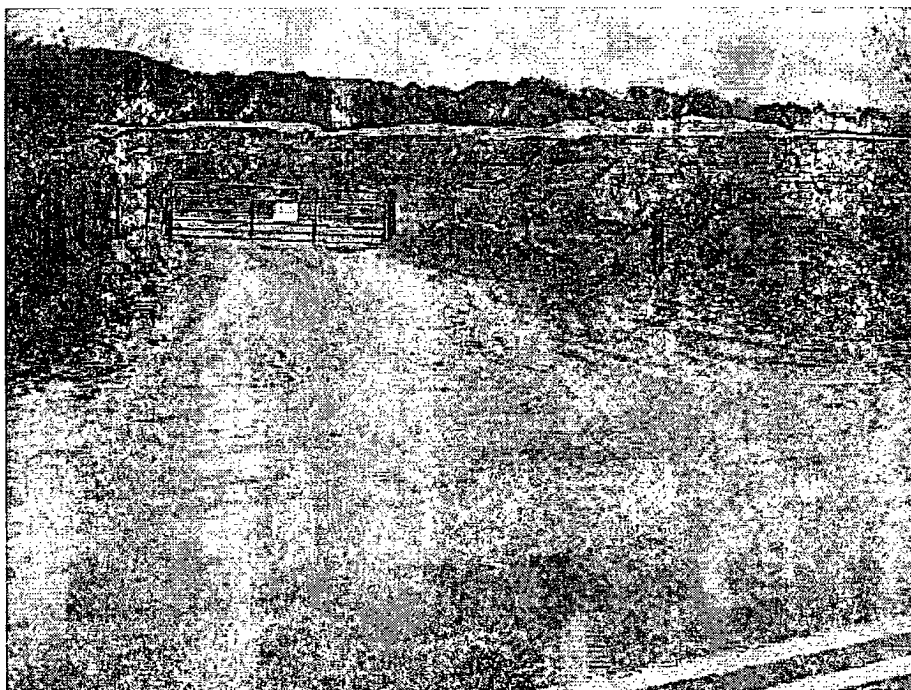
**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site  
**Photograph No.:** 3  
**Direction:** North  
**Subject:** Mine tailing berm at mine property

**Date:** October 6, 2009  
**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site  
**Photograph No.:** 4  
**Direction:** East  
**Subject:** Gate at driveway entrance to mine property

**Date:** October 6, 2009  
**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 5

**Direction:** West

**Subject:** View of mine tailings toward residence at 746 S. Blackjack Road

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

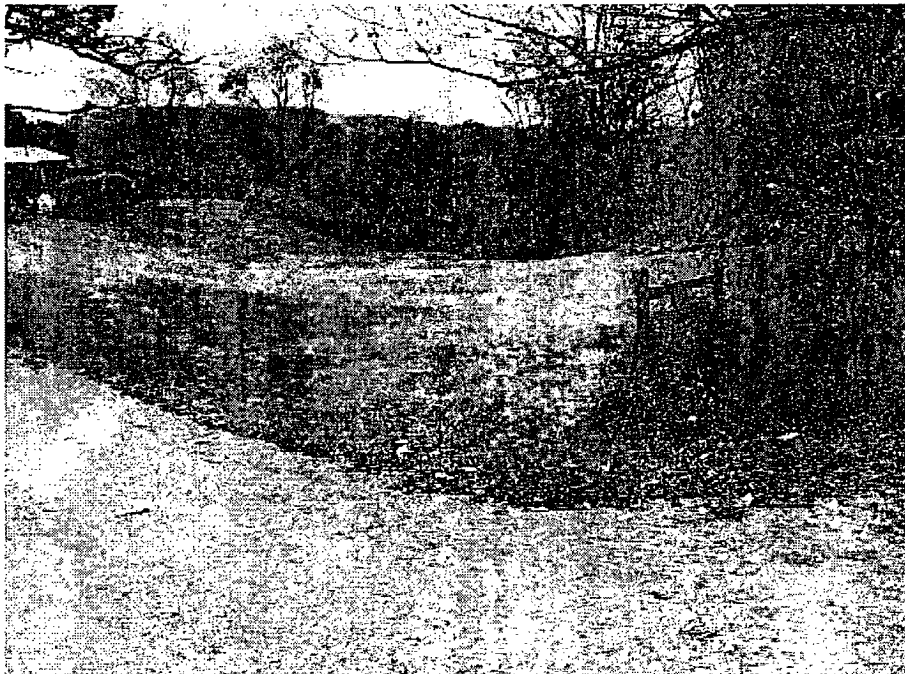
**Photograph No.:** 6

**Direction:** West

**Subject:** Residence across the street from the mine property at 746 S. Blackjack Road

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 7

**Direction:** West

**Subject:** Runoff ravine on residential property at 746 S. Blackjack Road

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 8

**Direction:** Southwest

**Subject:** Mine tailings on residential property at 746 S. Blackjack Road from previous storm events

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski





**Site:** Bautsch-Gray Mine Site

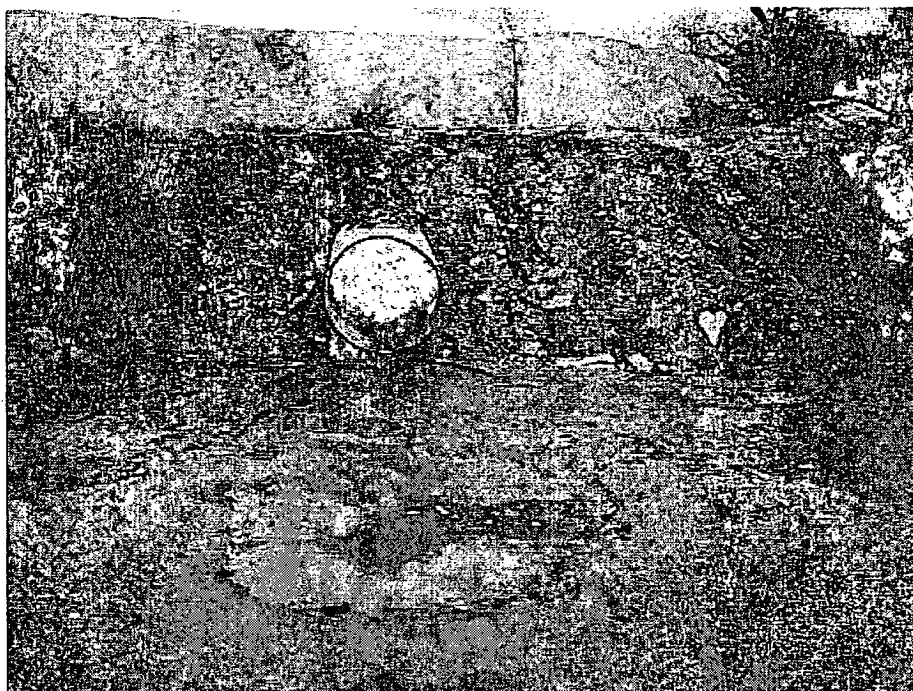
**Photograph No.:** 9

**Direction:** North

**Subject:** Storm water drainage to stand pipe at mine property

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 10

**Direction:** East

**Subject:** Storm water drainage pipe on west side of Blackjack Road

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski





**Site:** Bautsch-Gray Mine Site

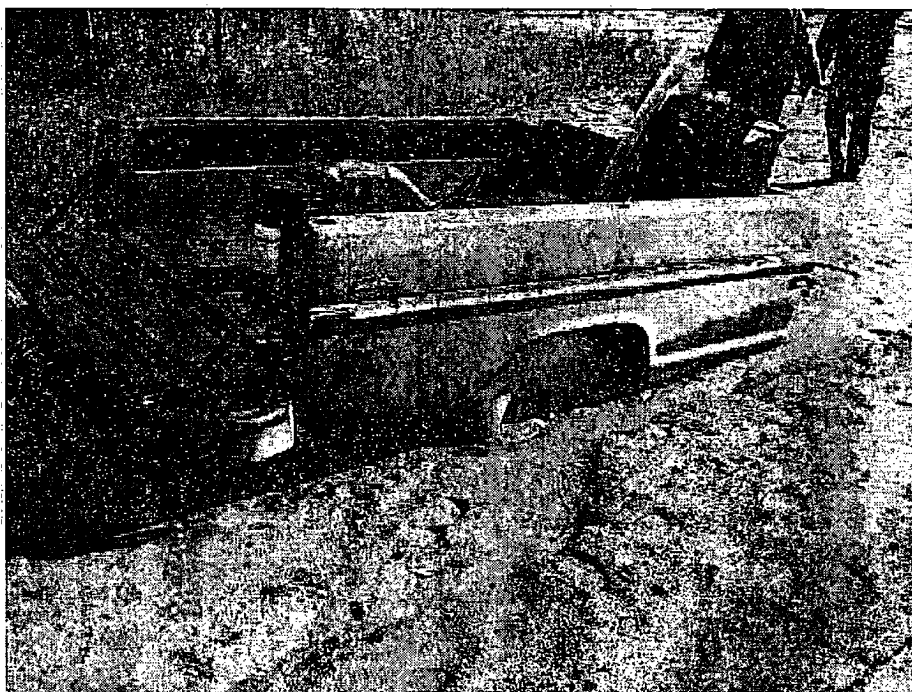
**Photograph No.:** 11

**Direction:** West

**Subject:** Storm water runoff ravine on west side of Blackjack Road

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 12

**Direction:** Southwest

**Subject:** Truck in runoff ravine buried in mine tailing buildup

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 13

**Direction:** South

**Subject:** Broken dam and garbage pile at south end of runoff ravine

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 14

**Direction:** South

**Subject:** Further runoff past broken dam at south end of runoff ravine

**Date:** October 6, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 15

**Direction:** Southwest

**Subject:** U.S. EPA FIELDs collecting XRF soil samples

**Date:** October 7, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

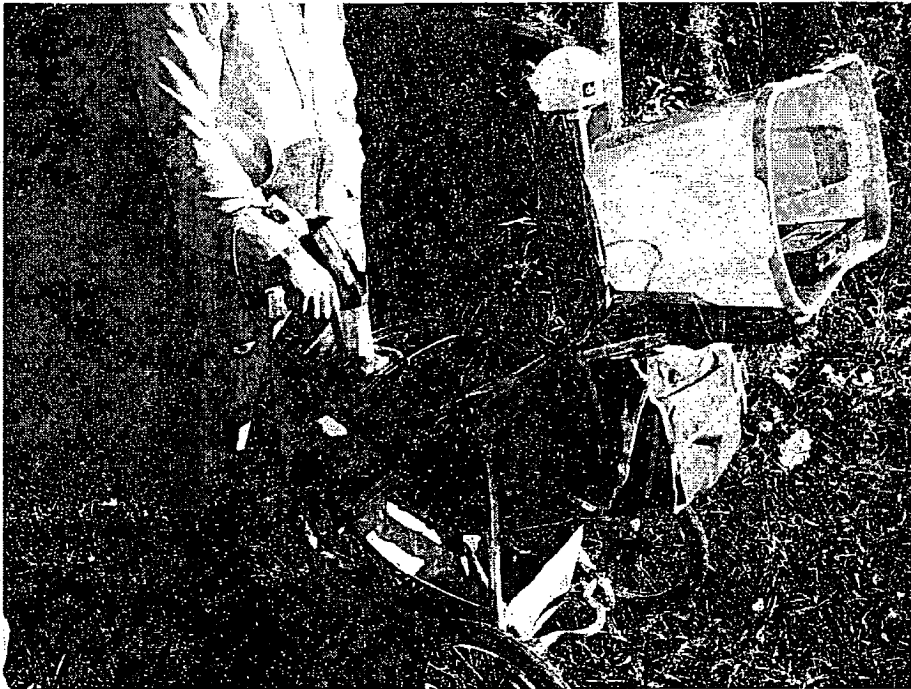
**Photograph No.:** 16

**Direction:** Southwest

**Subject:** U.S. EPA FIELDs homogenizing XRF soil samples

**Date:** October 7, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 17

**Direction:** Southwest

**Subject:** U.S. EPA FIELDs field screening XRF soil samples

**Date:** October 7, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 18

**Direction:** Southeast

**Subject:** WESTON START conducting residential well water sampling at RW02

**Date:** October 7, 2009

**Photographer:** Jeff Bryniarski



**Site:** Bautsch-Gray Mine Site

**Photograph No.:** 19

**Direction:** Southeast

**Subject:** WESTON START conducting site surface water sampling at SW01

**Date:** October 7, 2009

**Photographer:** Len Zintak

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**APPENDIX B**  
**LABORATORY ANALYTICAL REPORT**  
**AND DATA VALIDATION REPORT**

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**BAUTSCH GREY MINE SITE  
GALENA, ILLINOIS  
DATA VALIDATION REPORT**

**Date:** November 13, 2009

**Laboratory:** STAT Analysis Corporation (STAT), Chicago, Illinois

**Laboratory Project #:** 09100274

**Data Validation Performed By:** Lisa Graczyk, Weston Solutions, Inc. (WESTON) Superfund Technical Assessment and Response Team (START)

**Weston Analytical Work Order #/TDD #:** 20405.016.001.0768.00/S05-0001-0909-012

This data validation report has been prepared by WESTON START under the START III Region V contract. This report documents the data validation for 36 soil samples collected for the Bautsch Grey Mine Site that were analyzed for the following parameters and U.S. Environmental Protection Agency (U.S. EPA) methods:

- Metals by SW-846 Methods 6020 and 7471A
- Toxicity Characteristic Leaching Procedure (TCLP) Metals by SW-846 Methods 1311, 6020, and 7470A
- pH by SW-846 Method 9045C

A level IV data package was requested from STAT. The data validation was conducted in general accordance with the U.S. EPA "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated October 2004. The Attachment contains the results summary sheets with the hand-written qualifiers applied during data validation.

**METALS BY SW-846 METHODS 6020 AND 7471A AND TCLP METALS BY SW-846 METHODS 1311, 6020, AND 7470A**

**1. Samples**

The following table summarizes the soil samples for which this data validation is being conducted. Only five of the soil samples were analyzed for TCLP metals.

<b>Samples</b>	<b>Lab ID</b>	<b>Date Collected</b>	<b>Date Analyzed</b>
BG-S2-100709	09100274-001	10/7/2009	10/10/2009 – 10/16/2009
BG-S8-100709	09100274-002	10/7/2009	10/10/2009 – 10/16/2009
BG-S19-100709	09100274-003	10/7/2009	10/10/2009 – 10/16/2009
BG-S24-100709	09100274-004	10/7/2009	10/10/2009 – 10/16/2009
BG-S27-100709	09100274-005	10/7/2009	10/10/2009 – 10/13/2009
BG-S36-100709	09100274-006	10/7/2009	10/10/2009 – 10/13/2009
BG-S40-100709	09100274-007	10/7/2009	10/10/2009 – 10/13/2009
BG-S42-100709	09100274-008	10/7/2009	10/10/2009 – 10/13/2009
BG-S43-100709	09100274-009	10/7/2009	10/10/2009 – 10/13/2009
BG-S46-100709	09100274-010	10/7/2009	10/10/2009 – 10/13/2009
BG-S56-100709	09100274-011	10/7/2009	10/10/2009 – 10/16/2009
BG-S110-100709	09100274-012	10/7/2009	10/10/2009 – 10/16/2009
BG-S115-100709	09100274-013	10/7/2009	10/10/2009 – 10/13/2009
BG-S119-100709	09100274-014	10/7/2009	10/10/2009 – 10/16/2009
BG-S120-100709	09100274-015	10/7/2009	10/10/2009 – 10/13/2009
BG-S124-100709	09100274-016	10/7/2009	10/10/2009 – 10/13/2009
BG-S131-100709	09100274-017	10/7/2009	10/10/2009 – 10/13/2009
BG-S145-100709	09100274-018	10/7/2009	10/10/2009 – 10/13/2009
BG-S146-100709	09100274-019	10/7/2009	10/10/2009 – 10/13/2009
BG-S162-100709	09100274-020	10/7/2009	10/10/2009 – 10/13/2009
BG-S166-100709	09100274-021	10/7/2009	10/10/2009 – 10/13/2009
BG-S167-100709	09100274-022	10/7/2009	10/10/2009 – 10/13/2009
BG-S168-100709	09100274-023	10/7/2009	10/10/2009 – 10/13/2009
BG-S169-100709	09100274-024	10/7/2009	10/10/2009 – 10/13/2009
BG-S170-100709	09100274-025	10/7/2009	10/10/2009 – 10/16/2009
BG-S172-100709	09100274-026	10/7/2009	10/10/2009 – 10/13/2009
BG-S173-100709	09100274-027	10/7/2009	10/10/2009 – 10/13/2009
BG-S175-100709	09100274-028	10/7/2009	10/10/2009 – 10/13/2009
BG-S176-100709	09100274-029	10/7/2009	10/10/2009 – 10/13/2009
BG-S179-100709	09100274-030	10/7/2009	10/10/2009 – 10/13/2009
BG-S181-100709	09100274-031	10/7/2009	10/10/2009 – 10/13/2009



Samples	Lab ID	Date Collected	Date Analyzed
BG-S183-100709	09100274-032	10/7/2009	10/10/2009 – 10/13/2009
BG-S42-100709-D	09100274-033	10/7/2009	10/10/2009 – 10/13/2009
BG-S40-100709-D	09100274-034	10/7/2009	10/10/2009 – 10/13/2009
BG-S169-100709-D	09100274-035	10/7/2009	10/10/2009 – 10/16/2009
BG-S110-100709-D	09100274-036	10/7/2009	10/10/2009 – 10/13/2009

2. **Holding Times**

The samples were analyzed within the required holding time limit of 180 days from sample collection to analysis and 28 days for mercury.

3. **Calibrations**

The initial calibration verification and continuing calibration verification (CCV) standards were within the QC limits of 90 to 110 percent recovery (%R) except for as follows. Several CCV standards were associated with the sample analyses on different analyses dates. In some instances zinc was outside the QC limit. STAT re-analyzed these samples for zinc with acceptable results. No qualifications are required.

4. **Blank Results**

Blanks were analyzed with the samples and were free of target analyte contamination above the reporting limits. A couple of metals were detected below the reporting limit in the method blanks. Because these metal concentrations in the samples were much greater than the method blank concentrations, no qualifications were required.

5. **Interference Check Sample (ICS) Results**

The ICS solutions A and AB were analyzed. The recoveries in the ICS solution AB were within the QC limits of 80 to 120 %R.

6. **LCS Results**

The LCS recoveries were within the laboratory-established quality control (QC) limits for target analytes.

**7. Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Results**

Two site-specific MS/MSDs were analyzed by STAT for the total metals analyses. The percent recoveries and relative percent difference (RPD) results were within QC limits with a few exceptions. In some instances, the MS/MSD was not recovered properly because the sample concentration was much greater than the spike amount. No qualifications are warranted in these instances.

A site-specific MS/MSD was not analyzed for the TCLP metals analyses. No qualifications were applied for this omission.

**8. Field Duplicate Results**

Four field duplicates were collected and analyzed for metals (identified with a "D" suffix). The RPDs between the sample and field duplicate results were compared to a standard QC limit of 50 RPD. All RPDs were less than 50 with one exception. Barium had an RPD of 58 in the field duplicate associated with sample BG-S42-100709-D. This likely indicates some soil collected from the site is somewhat heterogeneous. No qualifications were applied.

**9. Overall Assessment**

The metals data are acceptable for use based on the information received. A spot-check of sample quantitation was performed and found to be correct. No data required qualification.

**GENERAL CHEMISTRY PARAMETERS (pH by 9045C)**

**1. Samples**

The following table summarizes the samples for which this data validation is being conducted.

<b>Samples</b>	<b>Lab ID</b>	<b>Date Collected</b>	<b>Date Analyzed</b>
BG-S2-100709	09100274-001	10/7/2009	10/10/2009
BG-S8-100709	09100274-002	10/7/2009	10/10/2009
BG-S19-100709	09100274-003	10/7/2009	10/10/2009
BG-S24-100709	09100274-004	10/7/2009	10/10/2009
BG-S27-100709	09100274-005	10/7/2009	10/10/2009
BG-S36-100709	09100274-006	10/7/2009	10/10/2009
BG-S40-100709	09100274-007	10/7/2009	10/10/2009
BG-S42-100709	09100274-008	10/7/2009	10/10/2009
BG-S43-100709	09100274-009	10/7/2009	10/10/2009
BG-S46-100709	09100274-010	10/7/2009	10/10/2009

Data Validation Report  
 Bautsch Grey Mine Site  
 STAT Analysis Corporation  
 Laboratory Project #: 09100274

Samples	Lab ID	Date Collected	Date Analyzed
BG-S56-100709	09100274-011	10/7/2009	10/10/2009
BG-S110-100709	09100274-012	10/7/2009	10/12/2009
BG-S115-100709	09100274-013	10/7/2009	10/12/2009
BG-S119-100709	09100274-014	10/7/2009	10/12/2009
BG-S120-100709	09100274-015	10/7/2009	10/12/2009
BG-S124-100709	09100274-016	10/7/2009	10/12/2009
BG-S131-100709	09100274-017	10/7/2009	10/12/2009
BG-S145-100709	09100274-018	10/7/2009	10/12/2009
BG-S146-100709	09100274-019	10/7/2009	10/12/2009
BG-S162-100709	09100274-020	10/7/2009	10/12/2009
BG-S166-100709	09100274-021	10/7/2009	10/12/2009
BG-S167-100709	09100274-022	10/7/2009	10/12/2009
BG-S168-100709	09100274-023	10/7/2009	10/12/2009
BG-S169-100709	09100274-024	10/7/2009	10/12/2009
BG-S170-100709	09100274-025	10/7/2009	10/12/2009
BG-S172-100709	09100274-026	10/7/2009	10/12/2009
BG-S173-100709	09100274-027	10/7/2009	10/12/2009
BG-S175-100709	09100274-028	10/7/2009	10/12/2009
BG-S176-100709	09100274-029	10/7/2009	10/12/2009
BG-S179-100709	09100274-030	10/7/2009	10/13/2009
BG-S181-100709	09100274-031	10/7/2009	10/13/2009
BG-S183-100709	09100274-032	10/7/2009	10/13/2009
BG-S42-100709-D	09100274-033	10/7/2009	10/13/2009
BG-S40-100709-D	09100274-034	10/7/2009	10/13/2009
BG-S169-100709-D	09100274-035	10/7/2009	10/13/2009
BG-S110-100709-D	09100274-036	10/7/2009	10/13/2009

2. **Holding Times**

The holding time limits for pH were acceptable.

3. **Laboratory Duplicate Results**

The laboratory duplicate results were within the QC limits for RPD.

4. **Overall Assessment**

The pH data are acceptable for use based on the information received.

Data Validation Report  
Bautsch Grey Mine Site  
STAT Analysis Corporation  
Laboratory Project #: 09100274

**ATTACHMENT**

**STAT ANALYSIS CORPORATION  
RESULTS SUMMARY**

**STAT Analysis Corporation**

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202-

October 22, 2009

Weston Solutions  
20 North Wacker Drive  
Suite 1210  
Chicago, IL 60606  
Telephone: (312) 424-3339  
Fax: (312) 424-3330

RE: 20405.016.001.0763.00, Bautech-Gray, Galena, IL

STAT Project No 09100274

Dear Lisa Graczyk:

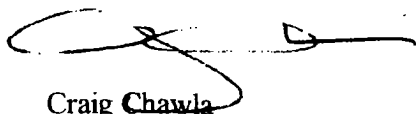
STAT Analysis received 36 samples for the referenced project on 10/8/2009 12:40:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAC standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Craig Chawla  
Project Manager

*The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory.*

**Client:** Weston Solutions**Project:** 20405.016.001.0763.00, Bautech-Gray, Galena, IL**Lab Order:** 09100274**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
09100274-001A	BG-S2-100709		10/7/2009	10/8/2009
09100274-002A	BG-S8-100709		10/7/2009	10/8/2009
09100274-003A	BG-S19-100709		10/7/2009	10/8/2009
09100274-004A	BG-S24-100709		10/7/2009	10/8/2009
09100274-005A	BG-S27-100709		10/7/2009	10/8/2009
09100274-006A	BG-S36-100709		10/7/2009	10/8/2009
09100274-007A	BG-S40-100709		10/7/2009	10/8/2009
09100274-008A	BG-S42-100709		10/7/2009	10/8/2009
09100274-009A	BG-S43-100709		10/7/2009	10/8/2009
09100274-010A	BG-S46-100709		10/7/2009	10/8/2009
09100274-011A	BG-S56-100709		10/7/2009	10/8/2009
09100274-012A	BG-S110-100709		10/7/2009	10/8/2009
09100274-013A	BG-S115-100709		10/7/2009	10/8/2009
09100274-014A	BG-S119-100709		10/7/2009	10/8/2009
09100274-015A	BG-S120-100709		10/7/2009	10/8/2009
09100274-016A	BG-S124-100709		10/7/2009	10/8/2009
09100274-017A	BG-S131-100709		10/7/2009	10/8/2009
09100274-018A	BG-S145-100709		10/7/2009	10/8/2009
09100274-019A	BG-S146-100709		10/7/2009	10/8/2009
09100274-020A	BG-S162-100709		10/7/2009	10/8/2009
09100274-021A	BG-S166-100709		10/7/2009	10/8/2009
09100274-022A	BG-S167-100709		10/7/2009	10/8/2009
09100274-023A	BG-S168-100709		10/7/2009	10/8/2009
09100274-024A	BG-S169-100709		10/7/2009	10/8/2009
09100274-025A	BG-S170-100709		10/7/2009	10/8/2009
09100274-026A	BG-S172-100709		10/7/2009	10/8/2009
09100274-027A	BG-S173-100709		10/7/2009	10/8/2009
09100274-028A	BG-S175-100709		10/7/2009	10/8/2009
09100274-029A	BG-S176-100709		10/7/2009	10/8/2009
09100274-030A	BG-S179-100709		10/7/2009	10/8/2009
09100274-031A	BG-S181-100709		10/7/2009	10/8/2009
09100274-032A	BG-S183-100709		10/7/2009	10/8/2009
09100274-033A	BG-S42-100709-D		10/7/2009	10/8/2009
09100274-034A	BG-S40-100709-D		10/7/2009	10/8/2009
09100274-035A	BG-S169-100709-D		10/7/2009	10/8/2009
09100274-036A	BG-S110-100709-D		10/7/2009	10/8/2009

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**CLIENT:** Weston Solutions  
**Project:** 20405.016.001.0763.00, Bautech-Gray, Galena, IL  
**Lab Order:** 09100274

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**CASE NARRATIVE**

The metals MS/MSD prepared from sample BG-S110-100709 (09100274-012) had Zinc recovery outside control limits (-452%/3250% recovery, QC limits 75-125); 21.5% RPD, QC limit < 20%). The sample concentration is greater than four times the spike level used. The MS/MSD had recovery of other analytes outside of control limits, however the analyte concentration in the sample was greater than four times the spike level for those elements.

The metals MS/MSD prepared from sample BG-S115-100709 (09100274-013) had Lead recovery outside control limits (280%/-109% recovery, QC limits 75-125%). The sample concentration is greater than four times the spike level used. The MS/MSD had recovery of other analytes outside of control limits, however the analyte concentration in the sample was greater than four times the spike level for those elements.

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## **Analytical Results**

**Client:** Weston Solutions  
**Project:** 20405.016.001.0763.00, Bautech-Gray, Galena, IL  
**Lab Order:** 09100274  
**Date Received:** October 8, 2009



**STAT Analysis Corporation**

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S2-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-001A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>TCLP Mercury</b>	<b>SW1311/7470A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.00025		mg/L	1	10/12/2009
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.033	0.026		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	20	1		mg/Kg-dry	10	10/10/2009
Barium	18	1		mg/Kg-dry	10	10/10/2009
Cadmium	14	0.5		mg/Kg-dry	10	10/10/2009
Chromium	1.9	1		mg/Kg-dry	10	10/10/2009
Copper	7.3	2.5		mg/Kg-dry	10	10/12/2009
Lead	2100	0.5		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	5700	100		mg/Kg-dry	200	10/12/2009
<b>TCLP Metals by ICP/MS</b>	<b>SW1311/6020 (SW3005A)</b>					Prep Date: 10/12/2009 Analyst: JG
Arsenic	ND	0.01		mg/L	5	10/12/2009
Barium	0.082	0.05		mg/L	5	10/12/2009
Cadmium	0.049	0.005		mg/L	5	10/12/2009
Chromium	ND	0.01		mg/L	5	10/12/2009
Copper	ND	0.1		mg/L	5	10/12/2009
Lead	7.9	0.005		mg/L	5	10/12/2009
Selenium	ND	0.01		mg/L	5	10/12/2009
Silver	ND	0.01		mg/L	5	10/12/2009
Zinc	24	1		mg/L	100	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.5			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	7.6	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S8-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL	<b>Collection Date:</b>	10/7/2009
<b>Lab ID:</b>	09100274-002A	<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>TCLP Mercury</b>	<b>SW1311/7470A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.00025		mg/L	1	10/12/2009
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.027		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	23	1		mg/Kg-dry	10	10/10/2009
Barium	20	1		mg/Kg-dry	10	10/10/2009
Cadmium	18	0.52		mg/Kg-dry	10	10/10/2009
Chromium	4.2	1		mg/Kg-dry	10	10/10/2009
Copper	14	2.6		mg/Kg-dry	10	10/12/2009
Lead	1500	0.52		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	12000	520		mg/Kg-dry	1000	10/12/2009
<b>TCLP Metals by ICP/MS</b>	<b>SW1311/6020 (SW3005A)</b>					Prep Date: 10/12/2009 Analyst: JG
Arsenic	ND	0.01		mg/L	5	10/12/2009
Barium	0.18	0.05		mg/L	5	10/12/2009
Cadmium	0.022	0.005		mg/L	5	10/12/2009
Chromium	ND	0.01		mg/L	5	10/12/2009
Copper	ND	0.1		mg/L	5	10/12/2009
Lead	2.4	0.005		mg/L	5	10/12/2009
Selenium	ND	0.01		mg/L	5	10/12/2009
Silver	ND	0.01		mg/L	5	10/12/2009
Zinc	7.1	0.1		mg/L	10	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.3			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	5.8	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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\* - Non-accredited parameter

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S19-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-003A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>TCLP Mercury</b>	<b>SW1311/7470A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.00025		mg/L	1	10/12/2009
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.034	0.03		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	45	1.1		mg/Kg-dry	10	10/10/2009
Barium	22	1.1		mg/Kg-dry	10	10/10/2009
Cadmium	22	0.54		mg/Kg-dry	10	10/10/2009
Chromium	4.2	1.1		mg/Kg-dry	10	10/10/2009
Copper	120	2.7		mg/Kg-dry	10	10/10/2009
Lead	2100	0.54		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.1		mg/Kg-dry	10	10/10/2009
Silver	ND	1.1		mg/Kg-dry	10	10/10/2009
Zinc	9100	540		mg/Kg-dry	1000	10/12/2009
<b>TCLP Metals by ICP/MS</b>	<b>SW1311/6020 (SW3005A)</b>					Prep Date: 10/12/2009 Analyst: JG
Arsenic	ND	0.01		mg/L	5	10/12/2009
Barium	0.11	0.05		mg/L	5	10/12/2009
Cadmium	0.093	0.005		mg/L	5	10/12/2009
Chromium	ND	0.01		mg/L	5	10/12/2009
Copper	ND	0.1		mg/L	5	10/12/2009
Lead	11	0.005		mg/L	5	10/12/2009
Selenium	ND	0.01		mg/L	5	10/12/2009
Silver	ND	0.01		mg/L	5	10/12/2009
Zinc	27	1		mg/L	100	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.4			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	18.8	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S24-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-004A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>TCLP Mercury</b>	<b>SW1311/7470A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.00025		mg/L	1	10/12/2009
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.09	0.029		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	56	1.2		mg/Kg-dry	10	10/10/2009
Barium	39	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	120	0.59		mg/Kg-dry	10	10/10/2009
Chromium	5.3	1.2		mg/Kg-dry	10	10/10/2009
Copper	43	3		mg/Kg-dry	10	10/10/2009
Lead	7200	12		mg/Kg-dry	200	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	3.2	1.2		mg/Kg-dry	10	10/10/2009
Zinc	68000	1200		mg/Kg-dry	2000	10/16/2009
<b>TCLP Metals by ICP/MS</b>	<b>SW1311/6020 (SW3005A)</b>					Prep Date: 10/12/2009 Analyst: JG
Arsenic	ND	0.01		mg/L	5	10/12/2009
Barium	0.38	0.05		mg/L	5	10/12/2009
Cadmium	0.33	0.005		mg/L	5	10/12/2009
Chromium	ND	0.01		mg/L	5	10/12/2009
Copper	ND	0.1		mg/L	5	10/12/2009
Lead	29	0.005		mg/L	5	10/12/2009
Selenium	ND	0.01		mg/L	5	10/12/2009
Silver	ND	0.01		mg/L	5	10/12/2009
Zinc	210	5		mg/L	500	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.3			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	19.7	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S27-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-005A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.032		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	5.9	1.4		mg/Kg-dry	10	10/10/2009
Barium	120	1.4		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.7		mg/Kg-dry	10	10/10/2009
Chromium	13	1.4		mg/Kg-dry	10	10/10/2009
Copper	13	3.5		mg/Kg-dry	10	10/10/2009
Lead	120	0.7		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.4		mg/Kg-dry	10	10/10/2009
Silver	ND	1.4		mg/Kg-dry	10	10/10/2009
Zinc	320	70		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.2			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	28.8	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S36-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-006A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.062	0.037		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	64	1.4		mg/Kg-dry	10	10/10/2009
Barium	32	1.4		mg/Kg-dry	10	10/10/2009
Cadmium	12	0.69		mg/Kg-dry	10	10/10/2009
Chromium	2.1	1.4		mg/Kg-dry	10	10/10/2009
Copper	51	3.5		mg/Kg-dry	10	10/10/2009
Lead	490	0.69		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.4		mg/Kg-dry	10	10/10/2009
Silver	ND	1.4		mg/Kg-dry	10	10/10/2009
Zinc	4300	69		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.2			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	37.7	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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J - Analyte detected below quantitation limits  
B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S40-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-007A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.029		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	51	1.1		mg/Kg-dry	10	10/10/2009
Barium	9.3	1.1		mg/Kg-dry	10	10/10/2009
Cadmium	11	0.56		mg/Kg-dry	10	10/10/2009
Chromium	1.4	1.1		mg/Kg-dry	10	10/10/2009
Copper	42	2.8		mg/Kg-dry	10	10/10/2009
Lead	790	0.56		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.1		mg/Kg-dry	10	10/10/2009
Silver	ND	1.1		mg/Kg-dry	10	10/10/2009
Zinc	4100	110		mg/Kg-dry	200	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.4			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	14.4	0.2		wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S42-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-008A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.036	0.032		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	10	1.3		mg/Kg-dry	10	10/10/2009
Barium	470	1.3		mg/Kg-dry	10	10/10/2009
Cadmium	1.7	0.65		mg/Kg-dry	10	10/10/2009
Chromium	21	1.3		mg/Kg-dry	10	10/10/2009
Copper	21	3.2		mg/Kg-dry	10	10/10/2009
Lead	87	0.65		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.3		mg/Kg-dry	10	10/10/2009
Silver	ND	1.3		mg/Kg-dry	10	10/10/2009
Zinc	580	65		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.2			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	23.9	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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\* - Non-accredited parameter

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R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded



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Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S43-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-009A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.046	0.039		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	6.4	1.6		mg/Kg-dry	10	10/10/2009
Barium	150	1.6		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.78		mg/Kg-dry	10	10/10/2009
Chromium	19	1.6		mg/Kg-dry	10	10/10/2009
Copper	19	3.9		mg/Kg-dry	10	10/10/2009
Lead	52	0.78		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.6		mg/Kg-dry	10	10/10/2009
Silver	ND	1.6		mg/Kg-dry	10	10/10/2009
Zinc	320	78		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	6.6			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	38.6	0.2	*	wt%	1	10/15/2009

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R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S46-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-010A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.027		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	43	1		mg/Kg-dry	10	10/10/2009
Barium	8.5	1		mg/Kg-dry	10	10/10/2009
Cadmium	16	0.52		mg/Kg-dry	10	10/10/2009
Chromium	1.4	1		mg/Kg-dry	10	10/10/2009
Copper	33	2.6		mg/Kg-dry	10	10/10/2009
Lead	980	0.52		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	5900	100		mg/Kg-dry	200	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/10/2009 Analyst: JMS
pH	7.2			pH Units	1	10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	6.8	0.2	*	wt%	1	10/15/2009

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\* - Non-accredited parameter

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R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S56-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-011A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					
Mercury	0.041	0.028		mg/Kg-dry	1	Prep Date: 10/12/2009 Analyst: VA 10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					
Arsenic	23	1		mg/Kg-dry	10	Prep Date: 10/9/2009 Analyst: JG 10/10/2009
Barium	20	1		mg/Kg-dry	10	10/10/2009
Cadmium	200	0.52		mg/Kg-dry	10	10/10/2009
Chromium	3.7	1		mg/Kg-dry	10	10/10/2009
Copper	12	2.6		mg/Kg-dry	10	10/10/2009
Lead	1000	0.52		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	11	1		mg/Kg-dry	10	10/10/2009
Zinc	72000	1000		mg/Kg-dry	2000	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					
pH	7.5			pH Units	1	Prep Date: 10/10/2009 Analyst: JMS 10/10/2009
<b>Percent Moisture</b>	<b>D2974</b>					
Percent Moisture	11.9	0.2	*	wt%	1	Prep Date: 10/14/2009 Analyst: JP 10/15/2009

**Qualifiers:**

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HT - Sample received past holding time

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E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S110-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-012A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.026		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	39	1		mg/Kg-dry	10	10/10/2009
Barium	10	1		mg/Kg-dry	10	10/10/2009
Cadmium	11	0.52		mg/Kg-dry	10	10/10/2009
Chromium	1.3	1		mg/Kg-dry	10	10/10/2009
Copper	27	2.6		mg/Kg-dry	10	10/10/2009
Lead	830	0.52		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	4100	100		mg/Kg-dry	200	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.3			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	6.3	0.2	*	wt%	1	10/15/2009

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R - RPD outside accepted recovery limits  
E - Value above quantitation range  
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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S115-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-013A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.027	0.027		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	49	1		mg/Kg-dry	10	10/10/2009
Barium	12	1		mg/Kg-dry	10	10/10/2009
Cadmium	14	0.52		mg/Kg-dry	10	10/10/2009
Chromium	1.9	1		mg/Kg-dry	10	10/10/2009
Copper	58	2.6		mg/Kg-dry	10	10/10/2009
Lead	1400	0.52		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	6300	100		mg/Kg-dry	200	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.4			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	11.9	0.2	*	wt%	1	10/15/2009

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R - RPD outside accepted recovery limits  
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H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S119-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-014A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
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<b>TCLP Mercury</b>	<b>SW1311/7470A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.00025		mg/L	1	10/12/2009

<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.041	0.025		mg/Kg-dry	1	10/13/2009

<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	41	0.95		mg/Kg-dry	10	10/10/2009
Barium	17	0.95		mg/Kg-dry	10	10/10/2009
Cadmium	18	0.47		mg/Kg-dry	10	10/10/2009
Chromium	3.4	0.95		mg/Kg-dry	10	10/10/2009
Copper	100	2.4		mg/Kg-dry	10	10/10/2009
Lead	1900	0.47		mg/Kg-dry	10	10/10/2009
Selenium	ND	0.95		mg/Kg-dry	10	10/10/2009
Silver	ND	0.95		mg/Kg-dry	10	10/10/2009
Zinc	7900	470		mg/Kg-dry	1000	10/12/2009

<b>TCLP Metals by ICP/MS</b>	<b>SW1311/6020 (SW3005A)</b>					Prep Date: 10/12/2009 Analyst: JG
Arsenic	ND	0.01		mg/L	5	10/12/2009
Barium	ND	0.05		mg/L	5	10/12/2009
Cadmium	0.28	0.005		mg/L	5	10/12/2009
Chromium	ND	0.01		mg/L	5	10/12/2009
Copper	0.26	0.1		mg/L	5	10/12/2009
Lead	4.3	0.005		mg/L	5	10/12/2009
Selenium	ND	0.01		mg/L	5	10/12/2009
Silver	ND	0.01		mg/L	5	10/12/2009
Zinc	120	5		mg/L	500	10/16/2009

<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.0			pH Units	1	10/12/2009

<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	7.2	0.2	*	wt%	1	10/15/2009

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R - RPD outside accepted recovery limits  
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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S120-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-015A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.057	0.032		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	63	1.2		mg/Kg-dry	10	10/10/2009
Barium	31	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	28	0.58		mg/Kg-dry	10	10/10/2009
Chromium	4.7	1.2		mg/Kg-dry	10	10/10/2009
Copper	160	2.9		mg/Kg-dry	10	10/10/2009
Lead	4000	0.58		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	13000	290		mg/Kg-dry	500	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.2			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	25.2	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

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R - RPD outside accepted recovery limits  
E - Value above quantitation range  
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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S124-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-016A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.057	0.037		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	9.9	1.4		mg/Kg-dry	10	10/10/2009
Barium	190	1.4		mg/Kg-dry	10	10/10/2009
Cadmium	2.3	0.68		mg/Kg-dry	10	10/10/2009
Chromium	21	1.4		mg/Kg-dry	10	10/10/2009
Copper	22	3.4		mg/Kg-dry	10	10/10/2009
Lead	240	0.68		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.4		mg/Kg-dry	10	10/10/2009
Silver	ND	1.4		mg/Kg-dry	10	10/10/2009
Zinc	980	68		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.1			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	32.3	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S131-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-017A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.048	0.035		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	14	1.4		mg/Kg-dry	10	10/10/2009
Barium	220	1.4		mg/Kg-dry	10	10/10/2009
Cadmium	4.1	0.68		mg/Kg-dry	10	10/10/2009
Chromium	17	1.4		mg/Kg-dry	10	10/10/2009
Copper	31	3.4		mg/Kg-dry	10	10/10/2009
Lead	510	0.68		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.4		mg/Kg-dry	10	10/10/2009
Silver	ND	1.4		mg/Kg-dry	10	10/10/2009
Zinc	1700	68		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.6			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	28.1	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

**STAT Analysis Corporation**

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S145-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-018A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.032		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	11	1.3		mg/Kg-dry	10	10/10/2009
Barium	150	1.3		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.64		mg/Kg-dry	10	10/10/2009
Chromium	19	1.3		mg/Kg-dry	10	10/10/2009
Copper	20	3.2		mg/Kg-dry	10	10/10/2009
Lead	140	0.64		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.3		mg/Kg-dry	10	10/10/2009
Silver	ND	1.3		mg/Kg-dry	10	10/10/2009
Zinc	610	64		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.4			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	24.2	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S146-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-019A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.031		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	12	1.2		mg/Kg-dry	10	10/10/2009
Barium	120	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	2.1	0.61		mg/Kg-dry	10	10/10/2009
Chromium	18	1.2		mg/Kg-dry	10	10/10/2009
Copper	23	3		mg/Kg-dry	10	10/10/2009
Lead	210	0.61		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	1000	61		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.1			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	20.6	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S162-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-020A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.031		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	44	1.2		mg/Kg-dry	10	10/10/2009
Barium	14	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	12	0.59		mg/Kg-dry	10	10/10/2009
Chromium	2.1	1.2		mg/Kg-dry	10	10/10/2009
Copper	51	2.9		mg/Kg-dry	10	10/10/2009
Lead	1100	0.59		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	4300	59		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.0			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	22.4	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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J - Analyte detected below quantitation limits  
B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client:	Weston Solutions	Client Sample ID:	BG-S166-100709
Lab Order:	09100274	Tag Number:	
Project:	20405.016.001.0763.00, Bautech-Gray, Galena, IL	Collection Date:	10/7/2009
Lab ID:	09100274-021A	Matrix:	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.18	0.037		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	24	1.3		mg/Kg-dry	10	10/10/2009
Barium	160	1.3		mg/Kg-dry	10	10/10/2009
Cadmium	5.7	0.66		mg/Kg-dry	10	10/10/2009
Chromium	6.5	1.3		mg/Kg-dry	10	10/10/2009
Copper	26	3.3		mg/Kg-dry	10	10/10/2009
Lead	1300	0.66		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.3		mg/Kg-dry	10	10/10/2009
Silver	ND	1.3		mg/Kg-dry	10	10/10/2009
Zinc	3000	66		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.2			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	35.6	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S167-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-022A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.027	0.027		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	66	0.93		mg/Kg-dry	10	10/10/2009
Barium	11	0.93		mg/Kg-dry	10	10/10/2009
Cadmium	14	0.46		mg/Kg-dry	10	10/10/2009
Chromium	1.9	0.93		mg/Kg-dry	10	10/10/2009
Copper	58	2.3		mg/Kg-dry	10	10/10/2009
Lead	1100	0.46		mg/Kg-dry	10	10/10/2009
Selenium	ND	0.93		mg/Kg-dry	10	10/10/2009
Silver	ND	0.93		mg/Kg-dry	10	10/10/2009
Zinc	4700	93		mg/Kg-dry	200	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.0			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	11.6	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank

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\* - Non-accredited parameter

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

Client: Weston Solutions

Client Sample ID: BG-S168-100709

Lab Order: 09100274

Tag Number:

Project: 20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009

Lab ID: 09100274-023A

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.051	0.035		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	18	1.2		mg/Kg-dry	10	10/10/2009
Barium	120	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	9.1	0.6		mg/Kg-dry	10	10/10/2009
Chromium	12	1.2		mg/Kg-dry	10	10/10/2009
Copper	31	3		mg/Kg-dry	10	10/10/2009
Lead	930	0.6		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	3600	60		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.4			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	28.6	0.2		wt%	1	10/15/2009

**Qualifiers:**

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HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S169-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-024A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.067	0.033		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	25	1.2		mg/Kg-dry	10	10/10/2009
Barium	120	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	8.4	0.59		mg/Kg-dry	10	10/10/2009
Chromium	11	1.2		mg/Kg-dry	10	10/10/2009
Copper	25	2.9		mg/Kg-dry	10	10/10/2009
Lead	580	0.59		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	3800	59		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	6.7			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	26.9	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded



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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S170-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-025A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.025		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	50	1		mg/Kg-dry	10	10/10/2009
Barium	13	1		mg/Kg-dry	10	10/10/2009
Cadmium	12	0.52		mg/Kg-dry	10	10/10/2009
Chromium	1.9	1		mg/Kg-dry	10	10/10/2009
Copper	38	2.6		mg/Kg-dry	10	10/10/2009
Lead	1300	0.52		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	4300	100		mg/Kg-dry	200	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.7			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	9.2	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S172-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-026A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.029		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	4.4	1.2		mg/Kg-dry	10	10/10/2009
Barium	190	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.59		mg/Kg-dry	10	10/10/2009
Chromium	16	1.2		mg/Kg-dry	10	10/10/2009
Copper	13	3		mg/Kg-dry	10	10/10/2009
Lead	23	0.59		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	81	59		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.6			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	18.3	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S173-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-027A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.03		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	3.9	1.1		mg/Kg-dry	10	10/10/2009
Barium	190	1.1		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.56		mg/Kg-dry	10	10/10/2009
Chromium	15	1.1		mg/Kg-dry	10	10/10/2009
Copper	13	2.8		mg/Kg-dry	10	10/10/2009
Lead	26	0.56		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.1		mg/Kg-dry	10	10/10/2009
Silver	ND	1.1		mg/Kg-dry	10	10/10/2009
Zinc	83	56		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.5			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	22.2	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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J - Analyte detected below quantitation limits  
B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis  
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

**STAT Analysis Corporation**

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

Client:	Weston Solutions	Client Sample ID:	BG-S175-100709
Lab Order:	09100274	Tag Number:	
Project:	20405.016.001.0763.00, Bautech-Gray, Galena, IL Collection Date: 10/7/2009		
Lab ID:	09100274-028A	Matrix:	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.056	0.028		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	15	1.1		mg/Kg-dry	10	10/10/2009
Barium	260	1.1		mg/Kg-dry	10	10/10/2009
Cadmium	4	0.57		mg/Kg-dry	10	10/10/2009
Chromium	12	1.1		mg/Kg-dry	10	10/10/2009
Copper	15	2.9		mg/Kg-dry	10	10/10/2009
Lead	850	0.57		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.1		mg/Kg-dry	10	10/10/2009
Silver	ND	1.1		mg/Kg-dry	10	10/10/2009
Zinc	1600	57		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/12/2009 Analyst: RW
pH	7.4			pH Units	1	10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	18.0	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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HT - Sample received past holding time

\* - Non-accredited parameter

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H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S176-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-029A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					
Mercury	0.053	0.032		mg/Kg-dry	1	Prep Date: 10/12/2009 Analyst: VA 10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					
Arsenic	15	1.2		mg/Kg-dry	10	Prep Date: 10/9/2009 Analyst: JG 10/10/2009
Barium	200	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	15	0.59		mg/Kg-dry	10	10/10/2009
Chromium	12	1.2		mg/Kg-dry	10	10/10/2009
Copper	15	2.9		mg/Kg-dry	10	10/10/2009
Lead	360	0.59		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	5300	120		mg/Kg-dry	200	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					
pH	7.2			pH Units	1	Prep Date: 10/12/2009 Analyst: RW 10/12/2009
<b>Percent Moisture</b>	<b>D2974</b>					
Percent Moisture	22.0	0.2	*	wt%	1	Prep Date: 10/14/2009 Analyst: JP 10/15/2009

**Qualifiers:**

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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S179-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL	<b>Collection Date:</b>	10/7/2009
<b>Lab ID:</b>	09100274-030A	<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.055	0.031		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	11	1.2		mg/Kg-dry	10	10/10/2009
Barium	210	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	1.5	0.62		mg/Kg-dry	10	10/10/2009
Chromium	29	1.2		mg/Kg-dry	10	10/10/2009
Copper	28	3.1		mg/Kg-dry	10	10/10/2009
Lead	150	0.62		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	650	62		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/13/2009 Analyst: JMS
pH	7.2			pH Units	1	10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	22.2	0.2	*	wt%	1	10/15/2009

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HT - Sample received past holding time

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E - Value above quantitation range

H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S181-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-031A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	0.033	0.033		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	6.4	1.3		mg/Kg-dry	10	10/10/2009
Barium	110	1.3		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.65		mg/Kg-dry	10	10/10/2009
Chromium	16	1.3		mg/Kg-dry	10	10/10/2009
Copper	17	3.2		mg/Kg-dry	10	10/10/2009
Lead	140	0.65		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.3		mg/Kg-dry	10	10/10/2009
Silver	ND	1.3		mg/Kg-dry	10	10/10/2009
Zinc	600	65		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/13/2009 Analyst: JMS
pH	7.0			pH Units	1	10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	25.2	0.2	*	wt%	1	10/15/2009

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\* - Non-accredited parameter

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R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S183-100709
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-032A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.033		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	7.5	1.4		mg/Kg-dry	10	10/10/2009
Barium	210	1.4		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.69		mg/Kg-dry	10	10/10/2009
Chromium	20	1.4		mg/Kg-dry	10	10/10/2009
Copper	20	3.4		mg/Kg-dry	10	10/10/2009
Lead	110	0.69		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.4		mg/Kg-dry	10	10/10/2009
Silver	ND	1.4		mg/Kg-dry	10	10/10/2009
Zinc	450	6.9		mg/Kg-dry	10	10/10/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/13/2009 Analyst: JMS
pH	7.0			pH Units	1	10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	27.4	0.2	*	wt%	1	10/15/2009

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S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded



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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S42-100709-D
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL	<b>Collection Date:</b>	10/7/2009
<b>Lab ID:</b>	09100274-033A	<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.033		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	9.6	1.2		mg/Kg-dry	10	10/10/2009
Barium	260	1.2		mg/Kg-dry	10	10/10/2009
Cadmium	ND	0.62		mg/Kg-dry	10	10/10/2009
Chromium	21	1.2		mg/Kg-dry	10	10/10/2009
Copper	18	3.1		mg/Kg-dry	10	10/10/2009
Lead	100	0.62		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.2		mg/Kg-dry	10	10/10/2009
Silver	ND	1.2		mg/Kg-dry	10	10/10/2009
Zinc	570	62		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/13/2009 Analyst: JMS
pH	7.0			pH Units	1	10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	23.8	0.2	*	wt%	1	10/15/2009

**Qualifiers:**

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J - Analyte detected below quantitation limits  
B - Analyte detected in the associated Method Blank  
HT - Sample received past holding time  
\* - Non-accredited parameter

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S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
H - Holding time exceeded

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S40-100709-D
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-034A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.029		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	46	1		mg/Kg-dry	10	10/10/2009
Barium	7.6	1		mg/Kg-dry	10	10/10/2009
Cadmium	9.9	0.51		mg/Kg-dry	10	10/10/2009
Chromium	1.3	1		mg/Kg-dry	10	10/10/2009
Copper	33	2.6		mg/Kg-dry	10	10/10/2009
Lead	910	0.51		mg/Kg-dry	10	10/10/2009
Selenium	ND	1		mg/Kg-dry	10	10/10/2009
Silver	ND	1		mg/Kg-dry	10	10/10/2009
Zinc	3600	51		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/13/2009 Analyst: JMS
pH	7.1			pH Units	1	10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	13.5	0.2	*	wt%	1	10/15/2009

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HT - Sample received past holding time

\* - Non-accredited parameter

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E - Value above quantitation range

H - Holding time exceeded

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Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S169-100709-D
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-035A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					
Mercury	0.076	0.031		mg/Kg-dry	1	Prep Date: 10/12/2009 Analyst: VA 10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					
Arsenic	16	1.3		mg/Kg-dry	10	Prep Date: 10/9/2009 Analyst: JG 10/10/2009
Barium	170	1.3		mg/Kg-dry	10	10/10/2009
Cadmium	11	0.63		mg/Kg-dry	10	10/10/2009
Chromium	13	1.3		mg/Kg-dry	10	10/10/2009
Copper	30	3.2		mg/Kg-dry	10	10/10/2009
Lead	580	0.63		mg/Kg-dry	10	10/10/2009
Selenium	ND	1.3		mg/Kg-dry	10	10/10/2009
Silver	ND	1.3		mg/Kg-dry	10	10/10/2009
Zinc	5300	130		mg/Kg-dry	200	10/16/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					
pH	6.7			pH Units	1	Prep Date: 10/13/2009 Analyst: JMS 10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					
Percent Moisture	22.3	0.2	*	wt%	1	Prep Date: 10/14/2009 Analyst: JP 10/15/2009

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HT - Sample received past holding time

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Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Report Date: October 22, 2009

Print Date: October 22, 2009

<b>Client:</b>	Weston Solutions	<b>Client Sample ID:</b>	BG-S110-100709-D
<b>Lab Order:</b>	09100274	<b>Tag Number:</b>	
<b>Project:</b>	20405.016.001.0763.00, Bautech-Gray, Galena, IL		
<b>Lab ID:</b>	09100274-036A	<b>Collection Date:</b>	10/7/2009
		<b>Matrix:</b>	Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
<b>Mercury</b>	<b>SW7471A</b>					Prep Date: 10/12/2009 Analyst: VA
Mercury	ND	0.026		mg/Kg-dry	1	10/13/2009
<b>Metals by ICP/MS</b>	<b>SW6020 (SW3050B)</b>					Prep Date: 10/9/2009 Analyst: JG
Arsenic	50	0.91		mg/Kg-dry	10	10/10/2009
Barium	11	0.91		mg/Kg-dry	10	10/10/2009
Cadmium	11	0.46		mg/Kg-dry	10	10/10/2009
Chromium	1.7	0.91		mg/Kg-dry	10	10/10/2009
Copper	30	2.3		mg/Kg-dry	10	10/10/2009
Lead	940	0.46		mg/Kg-dry	10	10/10/2009
Selenium	ND	0.91		mg/Kg-dry	10	10/10/2009
Silver	ND	0.91		mg/Kg-dry	10	10/10/2009
Zinc	3400	46		mg/Kg-dry	100	10/12/2009
<b>pH (25 °C)</b>	<b>SW9045C</b>					Prep Date: 10/13/2009 Analyst: JMS
pH	7.4			pH Units	1	10/13/2009
<b>Percent Moisture</b>	<b>D2974</b>					Prep Date: 10/14/2009 Analyst: JP
Percent Moisture	5.2	0.2	*	wt%	1	10/15/2009

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R - RPD outside accepted recovery limits

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e-mail address: ST-ATinfo@ST-ATAnalysis.com AIHA, NELAP and NELAP accredited

## CHAIN OF CUSTODY RECORD

N<sup>o</sup>: 827727

Page: 1 of 2

Company: <u>Weston Solutions</u>							P.O. No.:	
Project Number: <u>20405.016.001.0703.00</u> Client Tracking No.:							Quote No.:	
Project Name: <u>Baitsch-Gr</u>							<div style="transform: rotate(-45deg);"> <u>Total PCB Metak + Cuore + Zinc</u>  <u>60103/60201/7471A</u>  <u>PL 20450</u>  <u>TECP Metak 1311/60103/60201/7471A</u> </div>	
Project Location: <u>Galea, IL</u>								
Sampler(s): <u>1B/JC</u>								
Report To: <u>Lisa Graczyk</u> Phone: <u>312-424-3339</u>								
Fax:							Turn Around	
QC Level: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> e-mail: <u>lgraczyk@dynamic.com</u>							Results Needed:	
Client Sample Number/Description:							am/pm	
Date Taken							Remarks	
Time Taken							Lab No.	
Matrix								
Comp.								
Grab								
Preserv.								
No of Containers								
BG-S2-100709							001	
BG-SB-100709							002	
BG-S19-100709							003	
BG-S24-100709							004	
BG-S27-100709							005	
BG-S36-100709							006	
BG-S40-100709							007	
BG-S42-100709							008	
BG-S43-100709							009	
BG-S46-100709							010	
BG-S56-100709							011	
BG-S110-100709							012	
BG-S115-100709							013	
BG-S119-100709							014	
BG-S120-100709							015	
BG-S124-100709							016	
BG-S131-100709							017	
BG-S145-100709							018	
BG-S146-100709							019	
BG-S162-100709							020	
Relinquished by: (Signature) <u>[Signature]</u> Date/Time: <u>10/08/09 1240</u>							Comments:  Laboratory Work Order No.: <u>09100274</u> Received on Ice: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Temperature: <u>3.7°C</u>	
Received by: (Signature) <u>[Signature]</u> Date/Time: <u>10/08/09 1240</u>								
Relinquished by: (Signature) <u>[Signature]</u> Date/Time:								
Received by: (Signature) <u>[Signature]</u> Date/Time:								
Relinquished by: (Signature) <u>[Signature]</u> Date/Time:								
Received by: (Signature) <u>[Signature]</u> Date/Time:							Preservation Code: A = None B = HNO <sub>3</sub> C = NaOH D = H <sub>2</sub> SO <sub>4</sub> E = HCl F = 50/50/50 Core G = Other	



2242 W. Harrison, Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386  
e-mail address: [STATinfo@STATAnalysis.com](mailto:STATinfo@STATAnalysis.com) AIHA, NVLAP and NELAP accredited

Nº: 827726

Page : 2 of 2

[illegible]

**BAUTSCH GREY MINE SITE  
GALENA, ILLINOIS  
DATA VALIDATION REPORT**

**Date:** November 10, 2009

**Laboratory:** TestAmerica Laboratories, Inc. (TestAmerica), University Park, Illinois

**Laboratory Project #:** 500-21700-1

**Data Validation Performed By:** Lisa Graczyk, Weston Solutions, Inc. (Weston) Superfund Technical Assessment and Response Team (START)

**Weston Analytical TDD/Work Order #:** S05-0001-0909-012/20405.016.001.0768.00

This data validation report has been prepared by Weston START under the START III Region V contract. This report documents the data validation for five water samples (plus one trip blank) collected for the Bautsch Grey Mind Site that were analyzed for the following parameters and methods:

- Volatile Organic Compounds (VOC) by U.S. Environmental Protection Agency (U.S. EPA) SW-846 Method 8260B
- Semivolatile Organic Compounds (SVOC) by U.S. EPA SW-846 Method 8270C
- Total Metals by U.S. EPA SW-846 Methods 6020 and 7470A
- pH by U.S. EPA SW-846 Method 9040B

A level IV data package was requested from TestAmerica. The data validation was conducted in general accordance with the U.S. EPA "Contract Laboratory Program National Functional Guidance for Superfund Organic Methods Data Review" dated June 2008 and "Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" dated October 2004. The Attachment contains the results summary sheets with hand-written data qualifiers.

## VOCs BY METHOD 8260B

### 1. Samples

The following table summarizes the samples for which this data validation is being conducted.

<b>Samples</b>	<b>Lab ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Analyzed</b>
BG-RW01-100609	500-21700-1	Water	10/6/2009	10/14/2009
BG-RW02-100609	500-21700-2	Water	10/6/2009	10/14/2009
BG-RW02-100609	500-21700-3	Water	10/6/2009	10/14/2009
BG-SW01-100709	500-21700-4	Water	10/7/2009	10/14/2009
BG-SW02-100709	500-21700-5	Water	10/7/2009	10/14/2009
TRIP BLANK	500-21700-6	Water	10/6/2009	10/14/2009

### 2. Holding Times

The samples were analyzed within the required holding time limit of 14 days from sample collection.

### 3. Gas Chromatograph/Mass Spectrometer (GC/MS) Instrument Performance Check

The instrument performance check using bromofluorobenzene (BFB) was performed and met the ion abundance criteria specified in method 8260B.

### 4. Calibration Results

For the initial calibration, the percent relative standard deviations (%RSD) for target compounds were less than 30.

The percent differences in the continuing calibration standard for target compounds were within the control limit of less than or equal to 25 percent except for as follows.

In the continuing calibration, bromomethane was outside the QC limit. The quantitation limits for the non-detected bromomethane results were flagged "UJ" as estimated.

### 5. Blanks

A method blank was analyzed with the samples and was free of target compound contamination above the reporting limit. The trip blank was also free of target compound contamination above the reporting limit.



**6. Surrogate Recoveries**

The surrogate recoveries were within the laboratory-established QC limits.

**7. LCS Results**

The LCS recoveries were within the laboratory-established QC limits.

**8. Field Duplicate Results**

Both the field duplicate and parent investigative sample contained no detections of target VOC analytes indicating good correlation.

**9. Internal Standard Results**

The internal standard area counts were within -50 percent to +100 percent of the area counts in the associated continuing calibration standard. The retention time of the internal standards did not vary more than  $\pm 30$  seconds from the retention time of the associated continuing calibration standard.

**10. Overall Assessment**

The VOC data are acceptable for use based on the information received.

Note that extra volumes for matrix spike (MS) and matrix spikes duplicate (MSD) were not provided to the laboratory and therefore, the laboratory did not analyze a site-specific MS/MSD with the analysis. In addition, it was confirmed that target analytes were not detected in the samples (except for acetone in sample BG-SW01-100709).

## SVOCs BY METHOD 8270C

### 1. Samples

The following table summarizes the samples for which this data validation is being conducted.

Samples	Lab ID	Matrix	Date Collected	Date Prepared	Date Analyzed
BG-RW01-100609	500-21700-1	Water	10/6/2009	10/12/2009	10/13/2009
BG-RW02-100609	500-21700-2	Water	10/6/2009	10/12/2009	10/13/2009
BG-RW02-100609	500-21700-3	Water	10/6/2009	10/12/2009	10/13/2009
BG-SW01-100709	500-21700-4	Water	10/7/2009	10/12/2009	10/13/2009
BG-SW02-100709	500-21700-5	Water	10/7/2009	10/12/2009	10/13/2009

### 2. Holding Times

The samples were analyzed within the required holding time limit of 7 days from sample collection to extraction and 40 days from extraction to analysis for water samples.

### 3. Instrument Performance Check

The instrument performance check using decafluorotriphenylphosphine (DFTPP) met the ion abundance criteria specified in method 8270C.

### 4. Calibration Results

The initial calibration had acceptable results. The %RSD for all detected compounds were less than 30 and the average relative response factors were all greater than 0.05.

The %Ds in the CCV were within the QC limit of less than or equal to 20 percent for target compounds.

### 5. Blanks

Method blanks were analyzed with the samples and were free of target compound contamination above the reporting limit.

### 6. Surrogates Results

The surrogate spike recoveries were within the laboratory-established QC limits.

7. **LCS Results**

The LCS recoveries were within the laboratory-established QC limits.

8. **Field Duplicate Results**

Both the field duplicate and parent investigative sample contained no detections of target SVOC analytes indicating good correlation.

9. **Internal Standard Results**

The internal standard area counts were within -50 percent to +100 percent of the area counts in the associated continuing calibration standard. The retention time of the internal standards did not vary more than  $\pm 30$  seconds from the retention time of the associated continuing calibration standard.

10. **Overall Assessment**

The SVOC data are acceptable for use as qualified based on the information received. Note that extra volumes for MS and MSD were not provided to the laboratory and therefore, the laboratory did not analyze a site-specific MS/MSD with the analysis. In addition, it was confirmed that target analytes were not detected in the samples.

**TOTAL METALS BY METHODS 6020 AND 7470A**

1. **Samples**

The following table summarizes the samples for which this data validation is being conducted.

<b>Samples</b>	<b>Lab ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Analyzed</b>
BG-RW01-100609	500-21700-1	Water	10/6/2009	10/12/2009 – 10/20/2009
BG-RW02-100609	500-21700-2	Water	10/6/2009	10/12/2009 – 10/14/2009
BG-RW02-100609	500-21700-3	Water	10/6/2009	10/12/2009 – 10/14/2009
BG-SW01-100709	500-21700-4	Water	10/7/2009	10/12/2009 – 10/20/2009
BG-SW02-100709	500-21700-5	Water	10/7/2009	10/12/2009 – 10/20/2009

**2. Holding Times**

The samples were analyzed within the required holding time limit of 28 days from sample collection for mercury and 180 days from sample collection for all other metals.

**3. Calibrations**

The initial calibration verification and continuing calibration verification standards were within the QC limits of 90 to 110 percent recovery (%R).

**4. Blank Results**

Method blanks and calibration blanks were analyzed with the samples and were free of target analytes above the reporting limit except for as follows.

Cadmium was detected slightly above the reporting limit at 0.000675 milligram per liter (mg/L). Cadmium results at less than 10 times this concentration were flagged "J+" as estimated with a high bias.

Some target metals were detected below the reporting limit; however, in most instances there were either no detections in the samples or the sample result was much greater than the blank result. The exception was copper in sample BG-RW02-100609. This copper result was flagged "U" as not detect.

**5. Interference Check Sample (ICS) Results**

The ICS solutions A and AB were analyzed. The recoveries in the ICS solution AB were within the QC limits of 80 to 120 %R.

**6. LCS Results**

The LCS recoveries were within the laboratory-established QC limits for target analytes.

**7. Field Duplicate Results**

The relative percent difference (RPD) between the field duplicate and investigative sample was calculated for each detected metal. There is no RPD QC limit set for field duplicates; however, a standard RPD limit of 50 was used for comparison purposes. The RPDs ranged from 0 to 50 percent which indicates good correlation.

**8. MS and MSD Results**

Extra volumes for MS and MSD were not provided to the laboratory and therefore, the laboratory did not analyze a site-specific MS/MSD with the analysis.

**9. Overall Assessment**

The metals data are acceptable for use as qualified based on the information received. Sample results were spot-checked against raw data and they appear to have been reported correctly.

**MISCELLANEOUS PARAMETERS (pH by 9040B)**

**1. Samples**

The following table summarizes the samples for which this data validation is being conducted.

<b>Samples</b>	<b>Lab ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Analyzed</b>
BG-RW01-100609	500-21700-1	Water	10/6/2009	10/9/2009
BG-RW02-100609	500-21700-2	Water	10/6/2009	10/9/2009
BG-RW02-100609	500-21700-3	Water	10/6/2009	10/9/2009
BG-SW01-100709	500-21700-4	Water	10/7/2009	10/9/2009
BG-SW02-100709	500-21700-5	Water	10/7/2009	10/9/2009

**2. Holding Times**

There is not specific holding time limit for pH; although, the method states that the analysis should be run as soon as possible. pH was analyzed between 2 and 3 days from sample collection.

**3. Duplicate Results**

Laboratory duplicates were analyzed with the pH analyses. The RPDs between the duplicate and parent sample were within the QC limit.

In addition the field duplicate RPD value was 0.8 percent indicating excellent correlation.

Data Validation Report  
Bautsch Grey Mine Site  
TestAmerica Laboratories, Inc.  
Laboratory Project #: 500-21700-1

**4. Overall Assessment**

The pH data are acceptable for use based on the information received.

Data Validation Report  
Bautsch Grey Mine Site  
TestAmerica Laboratories, Inc.  
Laboratory Project #: 500-21700-1

**ATTACHMENT**

**TESTAMERICA LABORATORIES, INC.  
RESULTS SUMMARY**

## ANALYTICAL REPORT

Job Number: 500-21700-1

Job Description: Bautsch-Grey Mine

For:

Weston Solutions, Inc.  
20 N Wacker Dr  
Chicago, IL 60602-4206  
Attention: Lisa Graczyk

*Cindy Pritchard*

Approved for release.  
Cindy R Pritchard  
Project Mgmt. Assistant  
10/23/2009 11:38 AM

Designee for  
Richard C Wright  
Project Manager II  
richard.wright@testamericainc.com  
10/23/2009

These test results meet all the requirements of NELAC for accredited parameters.

The Lab Certification ID# is 100201.

All questions regarding this test report should be directed to the TestAmerica Project Manager whose signature appears on this report. All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.



**Job Narrative**  
**50217001**

**Comments**

No additional comments.

**Receipt**

All samples were received in good condition within temperature requirements.

**GC/MS VOA**

No analytical or quality issues were noted.

**GC/MS Semi VOA**

Method(s) 8270C: The ICV (Mix 1) that ran on inst. 1 on 10/09/09 at 18:57 had Nitrobenzene at 25.7% (high); Hexachlorocyclopentadiene at 30.5% (high) and 2,4,6-Trichlorophenol at 32.5% (high). BG-RW01-100609 (500-21700-1), BG-RW02-100609 (500-21700-2), BG-RW02-100609-D (500-21700-3), BG-SW01-100709 (500-21700-4), BG-SW02-100709 (500-21700-5)

No other analytical or quality issues were noted.

**Metals**

Method(s) 6020: The method blank for preparation batch 73329 contained Cd above the reporting limit (RL). All associated sample(s) that contained detects for this analyte at concentrations greater than 10X the value found in the method blank or were less than the RL were reported. All others were re-digested.

Method(s) 6020: The following samples were diluted due to the abundance of target analytes 500-21700-1, 4, 5. Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

**General Chemistry**

No analytical or quality issues were noted.

**Organic Prep**

No analytical or quality issues were noted.

# EXECUTIVE SUMMARY - Detections

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
<b>500-21700-1</b>	<b>BG-RW01-100609</b>					
pH		6.95	HF	0.200	SU	9040B
<i>Total Recoverable</i>						
Barium		0.016		0.0025	mg/L	6020
Cadmium		0.0011 <b>J+</b>		0.00050	mg/L	6020
Calcium		280		2.0	mg/L	6020
Copper		0.021	B	0.0020	mg/L	6020
Lead		0.027	B	0.00050	mg/L	6020
Magnesium		97		0.20	mg/L	6020
Manganese		0.0030		0.0025	mg/L	6020
Nickel		0.0024	B	0.0020	mg/L	6020
Potassium		1.5		0.50	mg/L	6020
Sodium		7.8	B	0.20	mg/L	6020
Thallium		0.00054	J	0.0020	mg/L	6020
Zinc		1.2	B	0.020	mg/L	6020
<b>500-21700-2</b>	<b>BG-RW02-100609</b>					
pH		7.01	HF	0.200	SU	9040B
<i>Total Recoverable</i>						
Arsenic		0.0014		0.0010	mg/L	6020
Barium		0.016		0.0025	mg/L	6020
Calcium		170		0.20	mg/L	6020
Cobalt		0.00080	J	0.0010	mg/L	6020
Copper		<del>0.00005</del>	<del>J-B</del>	<del>0.0020</del> <b>J</b>	mg/L	6020
Iron		2.1		0.10	mg/L	6020
Lead		0.00079	B	0.00050	mg/L	6020
Magnesium		85		0.20	mg/L	6020
Manganese		0.18		0.0025	mg/L	6020
Nickel		0.0030	B	0.0020	mg/L	6020
Potassium		1.4		0.50	mg/L	6020
Sodium		6.6	B	0.20	mg/L	6020
Zinc		0.60	B	0.020	mg/L	6020

# EXECUTIVE SUMMARY - Detections

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
<b>500-21700-3FD</b>	<b>BG-RW02-100609-D</b>					
pH		7.09	HF	0.200	SU	9040B
<b>Total Recoverable</b>						
Arsenic		0.0014		0.0010	mg/L	6020
Barium		0.017		0.0025	mg/L	6020
Calcium		180		0.20	mg/L	6020
Cobalt		0.00079	J	0.0010	mg/L	6020
Copper		0.0012	J B	0.0020	mg/L	6020
Iron		2.2		0.10	mg/L	6020
Lead		0.0016	B	0.00050	mg/L	6020
Magnesium		88		0.20	mg/L	6020
Manganese		0.18		0.0025	mg/L	6020
Nickel		0.0029	B	0.0020	mg/L	6020
Potassium		1.5		0.50	mg/L	6020
Sodium		6.8	B	0.20	mg/L	6020
Zinc		0.62	B	0.020	mg/L	6020
<b>500-21700-4</b>	<b>BG-SW01-100709</b>					
Acetone		0.0071		0.0050	mg/L	8260B
Mercury		0.00039		0.00020	mg/L	7470A
pH		7.27	HF	0.200	SU	9040B
<b>Total Recoverable</b>						
Aluminum		27		0.10	mg/L	6020
Antimony		0.0045	J	0.010	mg/L	6020
Arsenic		0.22		0.020	mg/L	6020
Barium		0.18		0.0025	mg/L	6020
Beryllium		0.0041		0.0010	mg/L	6020
Cadmium		0.39	B	0.0025	mg/L	6020
Calcium		1300		4.0	mg/L	6020
Chromium		0.047	J	0.10	mg/L	6020
Cobalt		0.19		0.020	mg/L	6020
Copper		0.40	B	0.040	mg/L	6020
Iron		230		2.0	mg/L	6020
Lead		63	B	0.010	mg/L	6020
Magnesium		250		1.0	mg/L	6020
Magnesium		260		4.0	mg/L	6020
Manganese		7.1		0.050	mg/L	6020
Nickel		0.37	B	0.040	mg/L	6020
Potassium		23		0.50	mg/L	6020
Silver		0.0073		0.00050	mg/L	6020
Sodium		0.96	J B	1.0	mg/L	6020
Thallium		0.0039		0.0020	mg/L	6020
Vanadium		0.029	J	0.10	mg/L	6020
Zinc		130	B	2.0	mg/L	6020

## EXECUTIVE SUMMARY - Detections

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier		Reporting Limit	Units	Method
500-21700-5	BG-SW02-100709					
pH		7.60	HF	0.200	SU	9040B
<b>Total Recoverable</b>						
Aluminum		0.025	J	0.10	mg/L	6020
Arsenic		0.00029	J	0.0010	mg/L	6020
Barium		0.022		0.0025	mg/L	6020
Cadmium		0.0012	J+	0.00050	mg/L	6020
Calcium		400		2.0	mg/L	6020
Cobalt		0.0011		0.0010	mg/L	6020
Copper		0.0037	B	0.0020	mg/L	6020
Iron		0.25		0.10	mg/L	6020
Lead		0.020	B	0.00050	mg/L	6020
Magnesium		64		0.20	mg/L	6020
Manganese		0.087		0.0025	mg/L	6020
Nickel		0.016	B	0.0020	mg/L	6020
Potassium		3.9		0.50	mg/L	6020
Sodium		7.4	B	0.20	mg/L	6020
Zinc		3.2	B	0.020	mg/L	6020

## METHOD SUMMARY

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Descript i on	Lab Locat i on	Met hod	Preparat i on Met hod
<b>Mat r i x/ Mat er</b>			
Volatile Organic Compounds (GC/MS)	TAL CHI	SW846 8260B	
Purge and Trap	TAL CHI		SW846 5030B
Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	TAL CHI	SW846 8270C	
Liquid-Liquid Extraction (Separatory Funnel)	TAL CHI		SW846 3510C
Metals (ICP/MS)	TAL CHI	SW846 6020	
Preparation, Total Recoverable or Dissolved Metals	TAL CHI		SW846 3005A
Mercury (CVAA)	TAL CHI	SW846 7470A	
Preparation, Mercury	TAL CHI		SW846 7470A
pH	TAL CHI	SW846 9040B	

### LabReferences:

TAL CHI = TestAmerica Chicago

### Met hodReferences:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## METHOD / ANALYST SUMMARY

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Method	Analyst	Analyst ID
SW846 8260B	Alkpala, Elaine	EA
SW846 8270C	Acakal, Duran	DA
SW846 6020	Kolarczyk, Paul F	PFK
SW846 7470A	Klee, George O	GOK
SW846 9040B	Moore, Colleen L	CLM

## SAMPLE SUMMARY

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
500-21700-1	BG-RW01-100609	Water	10/06/2009 1700	10/09/2009 1445
500-21700-2	BG-RW02-100609	Water	10/06/2009 1750	10/09/2009 1445
500-21700-3FD	BG-RW02-100609-D	Water	10/06/2009 1755	10/09/2009 1445
500-21700-4	BG-SW01-100709	Water	10/07/2009 1500	10/09/2009 1445
500-21700-5	BG-SW02-100709	Water	10/07/2009 1545	10/09/2009 1445
500-21700-6TB	TRIP BLANK	Water	10/06/2009 0000	10/09/2009 1445

## **SAMPLE RESULTS**



Lisa Graczyk  
Weston Solutions, Inc.  
20 N Wacker Dr  
Chicago, IL 60602-4206

Job Number: 500-21700-1

Client Sample ID: BG-RW01-100609  
Lab Sample ID: 500-21700-1

Date Sampled: 10/06/2009 1700  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
<b>Method: 8260B</b>		Date Analyzed: 10/14/2009 0232			
<b>Prep Method: 5030B</b>		Date Prepared: 10/14/2009 0232			
Acetone	<0.0050	mg/L	0.0021	0.0050	1.0
Benzene	<0.0010	mg/L	0.00015	0.0010	1.0
Bromodichloromethane	<0.0010	mg/L	0.00013	0.0010	1.0
Bromoform	<0.0010	mg/L	0.00030	0.0010	1.0
Bromomethane	<0.0010 <i>W</i>	mg/L	0.00045	0.0010	1.0
Carbon disulfide	<0.0050	mg/L	0.00066	0.0050	1.0
Carbon tetrachloride	<0.0010	mg/L	0.00032	0.0010	1.0
Chlorobenzene	<0.0010	mg/L	0.00017	0.0010	1.0
Chloroethane	<0.0010	mg/L	0.00036	0.0010	1.0
Chloroform	<0.0010	mg/L	0.00015	0.0010	1.0
Chloromethane	<0.0010	mg/L	0.00014	0.0010	1.0
cis-1,2-Dichloroethene	<0.0010	mg/L	0.00015	0.0010	1.0
cis-1,3-Dichloropropene	<0.0010	mg/L	0.00016	0.0010	1.0
Dibromochloromethane	<0.0010	mg/L	0.00017	0.0010	1.0
1,1-Dichloroethane	<0.0010	mg/L	0.00012	0.0010	1.0
1,2-Dichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1-Dichloroethene	<0.0010	mg/L	0.00023	0.0010	1.0
1,2-Dichloropropane	<0.0010	mg/L	0.00019	0.0010	1.0
1,3-Dichloropropene, Total	<0.0010	mg/L	0.00021	0.0010	1.0
Ethylbenzene	<0.0010	mg/L	0.00022	0.0010	1.0
2-Hexanone	<0.0050	mg/L	0.00077	0.0050	1.0
Methylene Chloride	<0.0020	mg/L	0.00052	0.0020	1.0
Methyl Ethyl Ketone	<0.0050	mg/L	0.0028	0.0050	1.0
methyl isobutyl ketone	<0.0050	mg/L	0.00077	0.0050	1.0
Methyl tert-butyl ether	<0.0010	mg/L	0.00016	0.0010	1.0
Styrene	<0.0010	mg/L	0.00017	0.0010	1.0
1,1,2,2-Tetrachloroethane	<0.0010	mg/L	0.00027	0.0010	1.0
Tetrachloroethene	<0.0010	mg/L	0.00020	0.0010	1.0
Toluene	<0.0010	mg/L	0.00017	0.0010	1.0
trans-1,2-Dichloroethene	<0.0010	mg/L	0.00018	0.0010	1.0
trans-1,3-Dichloropropene	<0.0010	mg/L	0.00021	0.0010	1.0
1,1,1-Trichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1,2-Trichloroethane	<0.0010	mg/L	0.00022	0.0010	1.0
Trichloroethene	<0.0010	mg/L	0.00016	0.0010	1.0
Vinyl chloride	<0.0010	mg/L	0.00015	0.0010	1.0
Xylenes, Total	<0.0020	mg/L	0.00042	0.0020	1.0
Surrogate			Acceptance Limits		
4-Bromofluorobenzene (Surr)	89	%	77 - 120		

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Weston Solutions, Inc.  
20 N Wacker Dr  
Chicago, IL 60602-4206

Job Number: 500-21700-1

Client Sample ID: BG-RW01-100609  
Lab Sample ID: 500-21700-1

Date Sampled: 10/06/2009 1700  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Surrogate				Acceptance Limits	
Dibromofluoromethane	110	%		79 - 133	
1,2-Dichloroethane-d4 (Surr)	110	%		72 - 135	
Toluene-d8 (Surr)	95	%		80 - 120	
Method: 8270C			Date Analyzed: 10/13/2009 1616		
Prep Method: 3510C			Date Prepared: 10/12/2009 0803		
Acenaphthene	<0.00094	mg/L	0.000055	0.00094	1.0
Acenaphthylene	<0.00094	mg/L	0.000055	0.00094	1.0
Anthracene	<0.00094	mg/L	0.000064	0.00094	1.0
Benzo[a]anthracene	<0.00012	mg/L	0.000062	0.00012	1.0
Benzo[a]pyrene	<0.00019	mg/L	0.000042	0.00019	1.0
Benzo[b]fluoranthene	<0.00017	mg/L	0.000040	0.00017	1.0
Benzo[g,h,i]perylene	<0.00094	mg/L	0.00010	0.00094	1.0
Benzo[k]fluoranthene	<0.00016	mg/L	0.000075	0.00016	1.0
Bis(2-chloroethoxy)methane	<0.0019	mg/L	0.00013	0.0019	1.0
Bis(2-chloroethyl)ether	<0.0019	mg/L	0.00023	0.0019	1.0
Bis(2-ethylhexyl) phthalate	<0.0094	mg/L	0.0018	0.0094	1.0
4-Bromophenyl phenyl ether	<0.0047	mg/L	0.00015	0.0047	1.0
Butyl benzyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
Carbazole	<0.0047	mg/L	0.00077	0.0047	1.0
4-Chloroaniline	<0.0094	mg/L	0.00074	0.0094	1.0
4-Chloro-3-methylphenol	<0.0094	mg/L	0.0023	0.0094	1.0
2-Chloronaphthalene	<0.0019	mg/L	0.00016	0.0019	1.0
2-Chlorophenol	<0.0047	mg/L	0.00020	0.0047	1.0
4-Chlorophenyl phenyl ether	<0.0047	mg/L	0.00023	0.0047	1.0
Chrysene	<0.00047	mg/L	0.000064	0.00047	1.0
Dibenz(a,h)anthracene	<0.00028	mg/L	0.000054	0.00028	1.0
Dibenzofuran	<0.0019	mg/L	0.00023	0.0019	1.0
1,2-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
1,3-Dichlorobenzene	<0.0019	mg/L	0.00020	0.0019	1.0
1,4-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
3,3'-Dichlorobenzidine	<0.0047	mg/L	0.00024	0.0047	1.0
2,4-Dichlorophenol	<0.0094	mg/L	0.0030	0.0094	1.0
Diethyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
2,4-Dimethylphenol	<0.0094	mg/L	0.0010	0.0094	1.0
Dimethyl phthalate	<0.0019	mg/L	0.00012	0.0019	1.0
Di-n-butyl phthalate	<0.0047	mg/L	0.00060	0.0047	1.0
4,6-Dinitro-2-methylphenol	<0.019	mg/L	0.0017	0.019	1.0
2,4-Dinitrophenol	<0.019	mg/L	0.0029	0.019	1.0
2,4-Dinitrotoluene	<0.00094	mg/L	0.00042	0.00094	1.0

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Chicago, IL 60602-4206

Job Number: 500-21700-1

Client Sample ID: BG-RW01-100609  
Lab Sample ID: 500-21700-1

Date Sampled: 10/06/2009 1700  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
2,6-Dinitrotoluene	<0.00047	mg/L	0.00011	0.00047	1.0
Di-n-octyl phthalate	<0.0094	mg/L	0.0016	0.0094	1.0
Fluoranthene	<0.00094	mg/L	0.000064	0.00094	1.0
Fluorene	<0.00094	mg/L	0.000054	0.00094	1.0
Hexachlorobenzene	<0.00047	mg/L	0.000062	0.00047	1.0
Hexachlorobutadiene	<0.0047	mg/L	0.00024	0.0047	1.0
Hexachlorocyclopentadiene	<0.019	mg/L	0.0042	0.019	1.0
Hexachloroethane	<0.0047	mg/L	0.00024	0.0047	1.0
Indeno[1,2,3-cd]pyrene	<0.00019	mg/L	0.000068	0.00019	1.0
Isophorone	<0.0019	mg/L	0.00055	0.0019	1.0
2-Methylnaphthalene	<0.00047	mg/L	0.00015	0.00047	1.0
2-Methylphenol	<0.0019	mg/L	0.00041	0.0019	1.0
3 & 4 Methylphenol	<0.0019	mg/L	0.00018	0.0019	1.0
Naphthalene	<0.00094	mg/L	0.000094	0.00094	1.0
2-Nitroaniline	<0.0047	mg/L	0.00052	0.0047	1.0
3-Nitroaniline	<0.0094	mg/L	0.00094	0.0094	1.0
4-Nitroaniline	<0.0094	mg/L	0.0022	0.0094	1.0
Nitrobenzene	<0.00094	mg/L	0.00028	0.00094	1.0
2-Nitrophenol	<0.0094	mg/L	0.00060	0.0094	1.0
4-Nitrophenol	<0.019	mg/L	0.0023	0.019	1.0
N-Nitrosodi-n-propylamine	<0.00047	mg/L	0.00014	0.00047	1.0
N-Nitrosodiphenylamine	<0.00094	mg/L	0.00019	0.00094	1.0
2,2'-oxybis[1-chloropropane]	<0.0019	mg/L	0.00019	0.0019	1.0
Pentachlorophenol	<0.019	mg/L	0.0020	0.019	1.0
Phenanthrene	<0.00094	mg/L	0.000067	0.00094	1.0
Phenol	<0.0047	mg/L	0.0012	0.0047	1.0
Pyrene	<0.00094	mg/L	0.000067	0.00094	1.0
1,2,4-Trichlorobenzene	<0.0019	mg/L	0.00023	0.0019	1.0
2,4,5-Trichlorophenol	<0.0094	mg/L	0.0025	0.0094	1.0
2,4,6-Trichlorophenol	<0.0047	mg/L	0.00063	0.0047	1.0

Surrogate	Acceptance Limits	
2-Fluorobiphenyl	73	%
2-Fluorophenol	41	%
Nitrobenzene-d5	68	%
Phenol-d5	27	%
Terphenyl-d14	84	%
2,4,6-Tribromophenol	78	%

Method: Total Recoverable-6020  
Prep Method: 3005A  
Aluminum

Date Analyzed: 10/12/2009 1419  
Date Prepared: 10/12/2009 0730

<0.10 mg/L 0.022 0.10 1.0

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Weston Solutions, Inc.  
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Chicago, IL 60602-4206

Job Number: 500-21700-1

Client Sample ID: BG-RW01-100609  
Lab Sample ID: 500-21700-1

Date Sampled: 10/06/2009 1700  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Arsenic	<0.0010	mg/L	0.00015	0.0010	1.0
Barium	0.016	mg/L	0.00057	0.0025	1.0
Chromium	<0.0050	mg/L	0.00084	0.0050	1.0
Copper	0.021 B	mg/L	0.00046	0.0020	1.0
Iron	<0.10	mg/L	0.024	0.10	1.0
Manganese	0.0030	mg/L	0.00028	0.0025	1.0
Nickel	0.0024 B	mg/L	0.00024	0.0020	1.0
Potassium	1.5	mg/L	0.10	0.50	1.0
Selenium	<0.0025	mg/L	0.00043	0.0025	1.0
Silver	<0.00050	mg/L	0.000094	0.00050	1.0
Thallium	0.00054 J	mg/L	0.00030	0.0020	1.0
Vanadium	<0.0050	mg/L	0.00061	0.0050	1.0
Zinc	1.2 B	mg/L	0.0066	0.020	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/12/2009 2009		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Beryllium	<0.0010	mg/L	0.00027	0.0010	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/14/2009 1400		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Antimony	<0.0020	mg/L	0.00016	0.0020	1.0
Cobalt	<0.0010	mg/L	0.000053	0.0010	1.0
Lead	0.027 B	mg/L	0.000050	0.00050	1.0
Magnesium	97	mg/L	0.024	0.20	1.0
Sodium	7.8 B	mg/L	0.024	0.20	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/19/2009 1941		
Prep Method: 3005A			Date Prepared: 10/19/2009 0800		
Cadmium	0.0011 J+	mg/L	0.00016	0.00050	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/20/2009 1713		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Calcium	280	mg/L	0.71	2.0	10
Method: 7470A			Date Analyzed: 10/13/2009 1358		
Prep Method: 7470A			Date Prepared: 10/13/2009 0915		
Mercury	<0.00020	mg/L	0.000078	0.00020	1.0
Method: 9040B			Date Analyzed: 10/09/2009 1459		
pH	6.95 HF	SU	0.200	0.200	1.0

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609  
Lab Sample ID: 500-21700-2

Date Sampled: 10/06/2009 1750  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Method: 8260B		Date Analyzed: 10/14/2009 0253			
Prep Method: 5030B		Date Prepared: 10/14/2009 0253			
Acetone	<0.0050	mg/L	0.0021	0.0050	1.0
Benzene	<0.0010	mg/L	0.00015	0.0010	1.0
Bromodichloromethane	<0.0010	mg/L	0.00013	0.0010	1.0
Bromoform	<0.0010	mg/L	0.00030	0.0010	1.0
Bromomethane	<0.0010 JJ	mg/L	0.00045	0.0010	1.0
Carbon disulfide	<0.0050	mg/L	0.00066	0.0050	1.0
Carbon tetrachloride	<0.0010	mg/L	0.00032	0.0010	1.0
Chlorobenzene	<0.0010	mg/L	0.00017	0.0010	1.0
Chloroethane	<0.0010	mg/L	0.00036	0.0010	1.0
Chloroform	<0.0010	mg/L	0.00015	0.0010	1.0
Chloromethane	<0.0010	mg/L	0.00014	0.0010	1.0
cis-1,2-Dichloroethene	<0.0010	mg/L	0.00015	0.0010	1.0
cis-1,3-Dichloropropene	<0.0010	mg/L	0.00016	0.0010	1.0
Dibromochloromethane	<0.0010	mg/L	0.00017	0.0010	1.0
1,1-Dichloroethane	<0.0010	mg/L	0.00012	0.0010	1.0
1,2-Dichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1-Dichloroethene	<0.0010	mg/L	0.00023	0.0010	1.0
1,2-Dichloropropane	<0.0010	mg/L	0.00019	0.0010	1.0
1,3-Dichloropropene, Total	<0.0010	mg/L	0.00021	0.0010	1.0
Ethylbenzene	<0.0010	mg/L	0.00022	0.0010	1.0
2-Hexanone	<0.0050	mg/L	0.00077	0.0050	1.0
Methylene Chloride	<0.0020	mg/L	0.00052	0.0020	1.0
Methyl Ethyl Ketone	<0.0050	mg/L	0.0028	0.0050	1.0
methyl isobutyl ketone	<0.0050	mg/L	0.00077	0.0050	1.0
Methyl tert-butyl ether	<0.0010	mg/L	0.00016	0.0010	1.0
Styrene	<0.0010	mg/L	0.00017	0.0010	1.0
1,1,2,2-Tetrachloroethane	<0.0010	mg/L	0.00027	0.0010	1.0
Tetrachloroethene	<0.0010	mg/L	0.00020	0.0010	1.0
Toluene	<0.0010	mg/L	0.00017	0.0010	1.0
trans-1,2-Dichloroethene	<0.0010	mg/L	0.00018	0.0010	1.0
trans-1,3-Dichloropropene	<0.0010	mg/L	0.00021	0.0010	1.0
1,1,1-Trichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1,2-Trichloroethane	<0.0010	mg/L	0.00022	0.0010	1.0
Trichloroethene	<0.0010	mg/L	0.00016	0.0010	1.0
Vinyl chloride	<0.0010	mg/L	0.00015	0.0010	1.0
Xylenes, Total	<0.0020	mg/L	0.00042	0.0020	1.0
Surrogate			Acceptance Limits		
4-Bromofluorobenzene (Surr)	88	%	77 - 120		

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609  
Lab Sample ID: 500-21700-2

Date Sampled: 10/06/2009 1750  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Surrogate				Acceptance Limits	
Dibromofluoromethane	112	%		79 - 133	
1,2-Dichloroethane-d4 (Surr)	113	%		72 - 135	
Toluene-d8 (Surr)	95	%		80 - 120	
Method: 8270C			Date Analyzed: 10/13/2009 1639		
Prep Method: 3510C			Date Prepared: 10/12/2009 0803		
Acenaphthene	<0.00093	mg/L	0.000054	0.00093	1.0
Acenaphthylene	<0.00093	mg/L	0.000054	0.00093	1.0
Anthracene	<0.00093	mg/L	0.000064	0.00093	1.0
Benzo[a]anthracene	<0.00012	mg/L	0.000062	0.00012	1.0
Benzo[a]pyrene	<0.00019	mg/L	0.000041	0.00019	1.0
Benzo[b]fluoranthene	<0.00017	mg/L	0.000039	0.00017	1.0
Benzo[g,h,i]perylene	<0.00093	mg/L	0.00010	0.00093	1.0
Benzo[k]fluoranthene	<0.00016	mg/L	0.000074	0.00016	1.0
Bis(2-chloroethoxy)methane	<0.0019	mg/L	0.00013	0.0019	1.0
Bis(2-chloroethyl)ether	<0.0019	mg/L	0.00022	0.0019	1.0
Bis(2-ethylhexyl) phthalate	<0.0093	mg/L	0.0018	0.0093	1.0
4-Bromophenyl phenyl ether	<0.0047	mg/L	0.00015	0.0047	1.0
Butyl benzyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
Carbazole	<0.0047	mg/L	0.00077	0.0047	1.0
4-Chloroaniline	<0.0093	mg/L	0.00073	0.0093	1.0
4-Chloro-3-methylphenol	<0.0093	mg/L	0.0022	0.0093	1.0
2-Chloronaphthalene	<0.0019	mg/L	0.00016	0.0019	1.0
2-Chlorophenol	<0.0047	mg/L	0.00020	0.0047	1.0
4-Chlorophenyl phenyl ether	<0.0047	mg/L	0.00022	0.0047	1.0
Chrysene	<0.00047	mg/L	0.000064	0.00047	1.0
Dibenz(a,h)anthracene	<0.00028	mg/L	0.000053	0.00028	1.0
Dibenzofuran	<0.0019	mg/L	0.00022	0.0019	1.0
1,2-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
1,3-Dichlorobenzene	<0.0019	mg/L	0.00020	0.0019	1.0
1,4-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
3,3'-Dichlorobenzidine	<0.0047	mg/L	0.00023	0.0047	1.0
2,4-Dichlorophenol	<0.0093	mg/L	0.0030	0.0093	1.0
Diethyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
2,4-Dimethylphenol	<0.0093	mg/L	0.0010	0.0093	1.0
Dimethyl phthalate	<0.0019	mg/L	0.00012	0.0019	1.0
Di-n-butyl phthalate	<0.0047	mg/L	0.00060	0.0047	1.0
4,6-Dinitro-2-methylphenol	<0.019	mg/L	0.0017	0.019	1.0
2,4-Dinitrophenol	<0.019	mg/L	0.0029	0.019	1.0
2,4-Dinitrotoluene	<0.00093	mg/L	0.00042	0.00093	1.0

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609  
Lab Sample ID: 500-21700-2

Date Sampled: 10/06/2009 1750  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
2,6-Dinitrotoluene	<0.00047	mg/L	0.00011	0.00047	1.0
Di-n-octyl phthalate	<0.0093	mg/L	0.0016	0.0093	1.0
Fluoranthene	<0.00093	mg/L	0.000064	0.00093	1.0
Fluorene	<0.00093	mg/L	0.000053	0.00093	1.0
Hexachlorobenzene	<0.00047	mg/L	0.000062	0.00047	1.0
Hexachlorobutadiene	<0.0047	mg/L	0.00023	0.0047	1.0
Hexachlorocyclopentadiene	<0.019	mg/L	0.0041	0.019	1.0
Hexachloroethane	<0.0047	mg/L	0.00023	0.0047	1.0
Indeno[1,2,3-cd]pyrene	<0.00019	mg/L	0.000067	0.00019	1.0
Isophorone	<0.0019	mg/L	0.00054	0.0019	1.0
2-Methylnaphthalene	<0.00047	mg/L	0.00015	0.00047	1.0
2-Methylphenol	<0.0019	mg/L	0.00040	0.0019	1.0
3 & 4 Methylphenol	<0.0019	mg/L	0.00018	0.0019	1.0
Naphthalene	<0.00093	mg/L	0.000093	0.00093	1.0
2-Nitroaniline	<0.0047	mg/L	0.00051	0.0047	1.0
3-Nitroaniline	<0.0093	mg/L	0.00093	0.0093	1.0
4-Nitroaniline	<0.0093	mg/L	0.0021	0.0093	1.0
Nitrobenzene	<0.00093	mg/L	0.00028	0.00093	1.0
2-Nitrophenol	<0.0093	mg/L	0.00060	0.0093	1.0
4-Nitrophenol	<0.019	mg/L	0.0022	0.019	1.0
N-Nitrosodi-n-propylamine	<0.00047	mg/L	0.00014	0.00047	1.0
N-Nitrosodiphenylamine	<0.00093	mg/L	0.00019	0.00093	1.0
2,2'-oxybis[1-chloropropane]	<0.0019	mg/L	0.00019	0.0019	1.0
Pentachlorophenol	<0.019	mg/L	0.0020	0.019	1.0
Phenanthrene	<0.00093	mg/L	0.000066	0.00093	1.0
Phenol	<0.0047	mg/L	0.0012	0.0047	1.0
Pyrene	<0.00093	mg/L	0.000066	0.00093	1.0
1,2,4-Trichlorobenzene	<0.0019	mg/L	0.00022	0.0019	1.0
2,4,5-Trichlorophenol	<0.0093	mg/L	0.0024	0.0093	1.0
2,4,6-Trichlorophenol	<0.0047	mg/L	0.00063	0.0047	1.0

Surrogate	Acceptance Limits	
2-Fluorobiphenyl	75	% 37 - 120
2-Fluorophenol	41	% 20 - 110
Nitrobenzene-d5	67	% 42 - 120
Phenol-d5	27	% 20 - 110
Terphenyl-d14	84	% 39 - 120
2,4,6-Tribromophenol	78	% 41 - 122

Method: Total Recoverable-6020

Prep Method: 3005A

Aluminum

Date Analyzed: 10/12/2009 1424

Date Prepared: 10/12/2009 0730

<0.10 mg/L 0.022 0.10 1.0

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609  
Lab Sample ID: 500-21700-2

Date Sampled: 10/06/2009 1750  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Arsenic	0.0014	mg/L	0.00015	0.0010	1.0
Barium	0.016	mg/L	0.00057	0.0025	1.0
Calcium	170	mg/L	0.071	0.20	1.0
Chromium	<0.0050	mg/L	0.00084	0.0050	1.0
Copper	0.0020 U <del>0.00095</del> JB	mg/L	0.00046	0.0020	1.0
Iron	2.1	mg/L	0.024	0.10	1.0
Manganese	0.18	mg/L	0.00028	0.0025	1.0
Nickel	0.0030 B	mg/L	0.00024	0.0020	1.0
Potassium	1.4	mg/L	0.10	0.50	1.0
Selenium	<0.0025	mg/L	0.00043	0.0025	1.0
Silver	<0.00050	mg/L	0.000094	0.00050	1.0
Thallium	<0.0020	mg/L	0.00030	0.0020	1.0
Vanadium	<0.0050	mg/L	0.00061	0.0050	1.0
Zinc	0.60 B	mg/L	0.0066	0.020	1.0
Method: Total Recoverable-6020			Date Analyzed:	10/12/2009 2013	
Prep Method: 3005A			Date Prepared:	10/12/2009 0730	
Beryllium	<0.0010	mg/L	0.00027	0.0010	1.0
Method: Total Recoverable-6020			Date Analyzed:	10/14/2009 1405	
Prep Method: 3005A			Date Prepared:	10/12/2009 0730	
Antimony	<0.0020	mg/L	0.00016	0.0020	1.0
Cadmium	<0.00050	mg/L	0.00016	0.00050	1.0
Cobalt	0.00080 J	mg/L	0.000053	0.0010	1.0
Lead	0.00079 B	mg/L	0.000050	0.00050	1.0
Magnesium	85	mg/L	0.024	0.20	1.0
Sodium	6.6 B	mg/L	0.024	0.20	1.0
Method: 7470A			Date Analyzed:	10/13/2009 1400	
Prep Method: 7470A			Date Prepared:	10/13/2009 0915	
Mercury	<0.00020	mg/L	0.000078	0.00020	1.0
Method: 9040B			Date Analyzed:	10/09/2009 1508	
pH	7.01 HF	SU	0.200	0.200	1.0



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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609-D  
Lab Sample ID: 500-21700-3

Date Sampled: 10/06/2009 1755  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
<b>Method: 8260B</b>		Date Analyzed: 10/14/2009 0315			
<b>Prep Method: 5030B</b>		Date Prepared: 10/14/2009 0315			
Acetone	<0.0050	mg/L	0.0021	0.0050	1.0
Benzene	<0.0010	mg/L	0.00015	0.0010	1.0
Bromodichloromethane	<0.0010	mg/L	0.00013	0.0010	1.0
Bromoform	<0.0010	mg/L	0.00030	0.0010	1.0
Bromomethane	<0.0010 UJ	mg/L	0.00045	0.0010	1.0
Carbon disulfide	<0.0050	mg/L	0.00066	0.0050	1.0
Carbon tetrachloride	<0.0010	mg/L	0.00032	0.0010	1.0
Chlorobenzene	<0.0010	mg/L	0.00017	0.0010	1.0
Chloroethane	<0.0010	mg/L	0.00036	0.0010	1.0
Chloroform	<0.0010	mg/L	0.00015	0.0010	1.0
Chloromethane	<0.0010	mg/L	0.00014	0.0010	1.0
cis-1,2-Dichloroethene	<0.0010	mg/L	0.00015	0.0010	1.0
cis-1,3-Dichloropropene	<0.0010	mg/L	0.00016	0.0010	1.0
Dibromochloromethane	<0.0010	mg/L	0.00017	0.0010	1.0
1,1-Dichloroethane	<0.0010	mg/L	0.00012	0.0010	1.0
1,2-Dichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1-Dichloroethene	<0.0010	mg/L	0.00023	0.0010	1.0
1,2-Dichloropropane	<0.0010	mg/L	0.00019	0.0010	1.0
1,3-Dichloropropene, Total	<0.0010	mg/L	0.00021	0.0010	1.0
Ethylbenzene	<0.0010	mg/L	0.00022	0.0010	1.0
2-Hexanone	<0.0050	mg/L	0.00077	0.0050	1.0
Methylene Chloride	<0.0020	mg/L	0.00052	0.0020	1.0
Methyl Ethyl Ketone	<0.0050	mg/L	0.0028	0.0050	1.0
methyl isobutyl ketone	<0.0050	mg/L	0.00077	0.0050	1.0
Methyl tert-butyl ether	<0.0010	mg/L	0.00016	0.0010	1.0
Styrene	<0.0010	mg/L	0.00017	0.0010	1.0
1,1,2,2-Tetrachloroethane	<0.0010	mg/L	0.00027	0.0010	1.0
Tetrachloroethene	<0.0010	mg/L	0.00020	0.0010	1.0
Toluene	<0.0010	mg/L	0.00017	0.0010	1.0
trans-1,2-Dichloroethene	<0.0010	mg/L	0.00018	0.0010	1.0
trans-1,3-Dichloropropene	<0.0010	mg/L	0.00021	0.0010	1.0
1,1,1-Trichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1,2-Trichloroethane	<0.0010	mg/L	0.00022	0.0010	1.0
Trichloroethene	<0.0010	mg/L	0.00016	0.0010	1.0
Vinyl chloride	<0.0010	mg/L	0.00015	0.0010	1.0
Xylenes, Total	<0.0020	mg/L	0.00042	0.0020	1.0
Surrogate			Acceptance Limits		
4-Bromofluorobenzene (Surr)	89	%	77 - 120		

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609-D  
Lab Sample ID: 500-21700-3

Date Sampled: 10/06/2009 1755  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Surrogate				Acceptance Limits	
Dibromofluoromethane	112	%		79 - 133	
1,2-Dichloroethane-d4 (Surr)	110	%		72 - 135	
Toluene-d8 (Surr)	95	%		80 - 120	
Method: 8270C			Date Analyzed: 10/13/2009 1702		
Prep Method: 3510C			Date Prepared: 10/12/2009 0803		
Acenaphthene	<0.00093	mg/L	0.000054	0.00093	1.0
Acenaphthylene	<0.00093	mg/L	0.000054	0.00093	1.0
Anthracene	<0.00093	mg/L	0.000064	0.00093	1.0
Benzo[a]anthracene	<0.00012	mg/L	0.000062	0.00012	1.0
Benzo[a]pyrene	<0.00019	mg/L	0.000041	0.00019	1.0
Benzo[b]fluoranthene	<0.00017	mg/L	0.000039	0.00017	1.0
Benzo[g,h,i]perylene	<0.00093	mg/L	0.00010	0.00093	1.0
Benzo[k]fluoranthene	<0.00016	mg/L	0.000074	0.00016	1.0
Bis(2-chloroethoxy)methane	<0.0019	mg/L	0.00013	0.0019	1.0
Bis(2-chloroethyl)ether	<0.0019	mg/L	0.00022	0.0019	1.0
Bis(2-ethylhexyl) phthalate	<0.0093	mg/L	0.0018	0.0093	1.0
4-Bromophenyl phenyl ether	<0.0047	mg/L	0.00015	0.0047	1.0
Butyl benzyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
Carbazole	<0.0047	mg/L	0.00077	0.0047	1.0
4-Chloroaniline	<0.0093	mg/L	0.00073	0.0093	1.0
4-Chloro-3-methylphenol	<0.0093	mg/L	0.0022	0.0093	1.0
2-Chloronaphthalene	<0.0019	mg/L	0.00016	0.0019	1.0
2-Chlorophenol	<0.0047	mg/L	0.00020	0.0047	1.0
4-Chlorophenyl phenyl ether	<0.0047	mg/L	0.00022	0.0047	1.0
Chrysene	<0.00047	mg/L	0.000064	0.00047	1.0
Dibenz(a,h)anthracene	<0.00028	mg/L	0.000053	0.00028	1.0
Dibenzofuran	<0.0019	mg/L	0.00022	0.0019	1.0
1,2-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
1,3-Dichlorobenzene	<0.0019	mg/L	0.00020	0.0019	1.0
1,4-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
3,3'-Dichlorobenzidine	<0.0047	mg/L	0.00023	0.0047	1.0
2,4-Dichlorophenol	<0.0093	mg/L	0.0030	0.0093	1.0
Diethyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
2,4-Dimethylphenol	<0.0093	mg/L	0.0010	0.0093	1.0
Dimethyl phthalate	<0.0019	mg/L	0.00012	0.0019	1.0
Di-n-butyl phthalate	<0.0047	mg/L	0.00060	0.0047	1.0
4,6-Dinitro-2-methylphenol	<0.019	mg/L	0.0017	0.019	1.0
2,4-Dinitrophenol	<0.019	mg/L	0.0029	0.019	1.0
2,4-Dinitrotoluene	<0.00093	mg/L	0.00042	0.00093	1.0

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609-D  
Lab Sample ID: 500-21700-3

Date Sampled: 10/06/2009 1755  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
2,6-Dinitrotoluene	<0.00047	mg/L	0.00011	0.00047	1.0
Di-n-octyl phthalate	<0.0093	mg/L	0.0016	0.0093	1.0
Fluoranthene	<0.00093	mg/L	0.000064	0.00093	1.0
Fluorene	<0.00093	mg/L	0.000053	0.00093	1.0
Hexachlorobenzene	<0.00047	mg/L	0.000062	0.00047	1.0
Hexachlorobutadiene	<0.0047	mg/L	0.00023	0.0047	1.0
Hexachlorocyclopentadiene	<0.019	mg/L	0.0041	0.019	1.0
Hexachloroethane	<0.0047	mg/L	0.00023	0.0047	1.0
Indeno[1,2,3-cd]pyrene	<0.00019	mg/L	0.000067	0.00019	1.0
Isophorone	<0.0019	mg/L	0.00054	0.0019	1.0
2-Methylnaphthalene	<0.00047	mg/L	0.00015	0.00047	1.0
2-Methylphenol	<0.0019	mg/L	0.00040	0.0019	1.0
3 & 4 Methylphenol	<0.0019	mg/L	0.00018	0.0019	1.0
Naphthalene	<0.00093	mg/L	0.000093	0.00093	1.0
2-Nitroaniline	<0.0047	mg/L	0.00051	0.0047	1.0
3-Nitroaniline	<0.0093	mg/L	0.00093	0.0093	1.0
4-Nitroaniline	<0.0093	mg/L	0.0021	0.0093	1.0
Nitrobenzene	<0.00093	mg/L	0.00028	0.00093	1.0
2-Nitrophenol	<0.0093	mg/L	0.00060	0.0093	1.0
4-Nitrophenol	<0.019	mg/L	0.0022	0.019	1.0
N-Nitrosodi-n-propylamine	<0.00047	mg/L	0.00014	0.00047	1.0
N-Nitrosodiphenylamine	<0.00093	mg/L	0.00019	0.00093	1.0
2,2'-oxybis[1-chloropropane]	<0.0019	mg/L	0.00019	0.0019	1.0
Pentachlorophenol	<0.019	mg/L	0.0020	0.019	1.0
Phenanthrene	<0.00093	mg/L	0.000066	0.00093	1.0
Phenol	<0.0047	mg/L	0.0012	0.0047	1.0
Pyrene	<0.00093	mg/L	0.000066	0.00093	1.0
1,2,4-Trichlorobenzene	<0.0019	mg/L	0.00022	0.0019	1.0
2,4,5-Trichlorophenol	<0.0093	mg/L	0.0024	0.0093	1.0
2,4,6-Trichlorophenol	<0.0047	mg/L	0.00063	0.0047	1.0

Surrogate	Acceptance Limits	
2-Fluorobiphenyl	74	%
2-Fluorophenol	41	%
Nitrobenzene-d5	69	%
Phenol-d5	26	%
Terphenyl-d14	84	%
2,4,6-Tribromophenol	76	%

Method: Total Recoverable-6020  
Prep Method: 3005A  
Aluminum

Date Analyzed: 10/12/2009 1429  
Date Prepared: 10/12/2009 0730

<0.10 mg/L 0.022 0.10 1.0

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Job Number: 500-21700-1

Client Sample ID: BG-RW02-100609-D  
Lab Sample ID: 500-21700-3

Date Sampled: 10/06/2009 1755  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Arsenic	0.0014	mg/L	0.00015	0.0010	1.0
Barium	0.017	mg/L	0.00057	0.0025	1.0
Calcium	180	mg/L	0.071	0.20	1.0
Chromium	<0.0050	mg/L	0.00084	0.0050	1.0
Copper	0.0012 J B	mg/L	0.00046	0.0020	1.0
Iron	2.2	mg/L	0.024	0.10	1.0
Manganese	0.18	mg/L	0.00028	0.0025	1.0
Nickel	0.0029 B	mg/L	0.00024	0.0020	1.0
Potassium	1.5	mg/L	0.10	0.50	1.0
Selenium	<0.0025	mg/L	0.00043	0.0025	1.0
Silver	<0.00050	mg/L	0.000094	0.00050	1.0
Thallium	<0.0020	mg/L	0.00030	0.0020	1.0
Vanadium	<0.0050	mg/L	0.00061	0.0050	1.0
Zinc	0.62 B	mg/L	0.0066	0.020	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/12/2009 2017		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Beryllium	<0.0010	mg/L	0.00027	0.0010	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/14/2009 1410		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Antimony	<0.0020	mg/L	0.00016	0.0020	1.0
Cadmium	<0.00050	mg/L	0.00016	0.00050	1.0
Cobalt	0.00079 J	mg/L	0.000053	0.0010	1.0
Lead	0.0016 B	mg/L	0.000050	0.00050	1.0
Magnesium	88	mg/L	0.024	0.20	1.0
Sodium	6.8 B	mg/L	0.024	0.20	1.0
Method: 7470A			Date Analyzed: 10/13/2009 1402		
Prep Method: 7470A			Date Prepared: 10/13/2009 0915		
Mercury	<0.00020	mg/L	0.000078	0.00020	1.0
Method: 9040B			Date Analyzed: 10/09/2009 1517		
pH	7.09 HF	SU	0.200	0.200	1.0

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Job Number: 500-21700-1

Client Sample ID: BG-SW01-100709  
Lab Sample ID: 500-21700-4

Date Sampled: 10/07/2009 1500  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
<b>Method: 8260B</b>		Date Analyzed: 10/14/2009 0335			
<b>Prep Method: 5030B</b>		Date Prepared: 10/14/2009 0335			
Acetone	0.0071	mg/L	0.0021	0.0050	1.0
Benzene	<0.0010	mg/L	0.00015	0.0010	1.0
Bromodichloromethane	<0.0010	mg/L	0.00013	0.0010	1.0
Bromoform	<0.0010	mg/L	0.00030	0.0010	1.0
Bromomethane	<0.0010 JJ	mg/L	0.00045	0.0010	1.0
Carbon disulfide	<0.0050	mg/L	0.00066	0.0050	1.0
Carbon tetrachloride	<0.0010	mg/L	0.00032	0.0010	1.0
Chlorobenzene	<0.0010	mg/L	0.00017	0.0010	1.0
Chloroethane	<0.0010	mg/L	0.00036	0.0010	1.0
Chloroform	<0.0010	mg/L	0.00015	0.0010	1.0
Chloromethane	<0.0010	mg/L	0.00014	0.0010	1.0
cis-1,2-Dichloroethene	<0.0010	mg/L	0.00015	0.0010	1.0
cis-1,3-Dichloropropene	<0.0010	mg/L	0.00016	0.0010	1.0
Dibromochloromethane	<0.0010	mg/L	0.00017	0.0010	1.0
1,1-Dichloroethane	<0.0010	mg/L	0.00012	0.0010	1.0
1,2-Dichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1-Dichloroethene	<0.0010	mg/L	0.00023	0.0010	1.0
1,2-Dichloropropane	<0.0010	mg/L	0.00019	0.0010	1.0
1,3-Dichloropropene, Total	<0.0010	mg/L	0.00021	0.0010	1.0
Ethylbenzene	<0.0010	mg/L	0.00022	0.0010	1.0
2-Hexanone	<0.0050	mg/L	0.00077	0.0050	1.0
Methylene Chloride	<0.0020	mg/L	0.00052	0.0020	1.0
Methyl Ethyl Ketone	<0.0050	mg/L	0.0028	0.0050	1.0
methyl isobutyl ketone	<0.0050	mg/L	0.00077	0.0050	1.0
Methyl tert-butyl ether	<0.0010	mg/L	0.00016	0.0010	1.0
Styrene	<0.0010	mg/L	0.00017	0.0010	1.0
1,1,2,2-Tetrachloroethane	<0.0010	mg/L	0.00027	0.0010	1.0
Tetrachloroethene	<0.0010	mg/L	0.00020	0.0010	1.0
Toluene	<0.0010	mg/L	0.00017	0.0010	1.0
trans-1,2-Dichloroethene	<0.0010	mg/L	0.00018	0.0010	1.0
trans-1,3-Dichloropropene	<0.0010	mg/L	0.00021	0.0010	1.0
1,1,1-Trichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1,2-Trichloroethane	<0.0010	mg/L	0.00022	0.0010	1.0
Trichloroethene	<0.0010	mg/L	0.00016	0.0010	1.0
Vinyl chloride	<0.0010	mg/L	0.00015	0.0010	1.0
Xylenes, Total	<0.0020	mg/L	0.00042	0.0020	1.0
Surrogate			Acceptance Limits		
4-Bromofluorobenzene (Surr)	88	%	77 - 120		

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Job Number: 500-21700-1

Client Sample ID: BG-SW01-100709  
Lab Sample ID: 500-21700-4

Date Sampled: 10/07/2009 1500  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Surrogate				Acceptance Limits	
Dibromofluoromethane	110	%		79 - 133	
1,2-Dichloroethane-d4 (Surr)	111	%		72 - 135	
Toluene-d8 (Surr)	95	%		80 - 120	
Method: 8270C			Date Analyzed: 10/13/2009 1724		
Prep Method: 3510C			Date Prepared: 10/12/2009 0803		
Acenaphthene	<0.00096	mg/L	0.000056	0.00096	1.0
Acenaphthylene	<0.00096	mg/L	0.000056	0.00096	1.0
Anthracene	<0.00096	mg/L	0.000065	0.00096	1.0
Benzo[a]anthracene	<0.00012	mg/L	0.000063	0.00012	1.0
Benzo[a]pyrene	<0.00019	mg/L	0.000042	0.00019	1.0
Benzo[b]fluoranthene	<0.00017	mg/L	0.000040	0.00017	1.0
Benzo[g,h,i]perylene	<0.00096	mg/L	0.00011	0.00096	1.0
Benzo[k]fluoranthene	<0.00016	mg/L	0.000076	0.00016	1.0
Bis(2-chloroethoxy)methane	<0.0019	mg/L	0.00013	0.0019	1.0
Bis(2-chloroethyl)ether	<0.0019	mg/L	0.00023	0.0019	1.0
Bis(2-ethylhexyl) phthalate	<0.0096	mg/L	0.0018	0.0096	1.0
4-Bromophenyl phenyl ether	<0.0048	mg/L	0.00015	0.0048	1.0
Butyl benzyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
Carbazole	<0.0048	mg/L	0.00079	0.0048	1.0
4-Chloroaniline	<0.0096	mg/L	0.00075	0.0096	1.0
4-Chloro-3-methylphenol	<0.0096	mg/L	0.0023	0.0096	1.0
2-Chloronaphthalene	<0.0019	mg/L	0.00016	0.0019	1.0
2-Chlorophenol	<0.0048	mg/L	0.00020	0.0048	1.0
4-Chlorophenyl phenyl ether	<0.0048	mg/L	0.00023	0.0048	1.0
Chrysene	<0.00048	mg/L	0.000065	0.00048	1.0
Dibenz(a,h)anthracene	<0.00029	mg/L	0.000055	0.00029	1.0
Dibenzofuran	<0.0019	mg/L	0.00023	0.0019	1.0
1,2-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
1,3-Dichlorobenzene	<0.0019	mg/L	0.00020	0.0019	1.0
1,4-Dichlorobenzene	<0.0019	mg/L	0.00019	0.0019	1.0
3,3'-Dichlorobenzidine	<0.0048	mg/L	0.00024	0.0048	1.0
2,4-Dichlorophenol	<0.0096	mg/L	0.0031	0.0096	1.0
Diethyl phthalate	<0.0019	mg/L	0.00019	0.0019	1.0
2,4-Dimethylphenol	<0.0096	mg/L	0.0011	0.0096	1.0
Dimethyl phthalate	<0.0019	mg/L	0.00012	0.0019	1.0
Di-n-butyl phthalate	<0.0048	mg/L	0.00062	0.0048	1.0
4,6-Dinitro-2-methylphenol	<0.019	mg/L	0.0017	0.019	1.0
2,4-Dinitrophenol	<0.019	mg/L	0.0030	0.019	1.0
2,4-Dinitrotoluene	<0.00096	mg/L	0.00043	0.00096	1.0

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Job Number: 500-21700-1

Client Sample ID: BG-SW01-100709

Lab Sample ID: 500-21700-4

Date Sampled: 10/07/2009 1500

Date Received: 10/09/2009 1445

Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
2,6-Dinitrotoluene	<0.00048	mg/L	0.00012	0.00048	1.0
Di-n-octyl phthalate	<0.0096	mg/L	0.0016	0.0096	1.0
Fluoranthene	<0.00096	mg/L	0.000065	0.00096	1.0
Fluorene	<0.00096	mg/L	0.000055	0.00096	1.0
Hexachlorobenzene	<0.00048	mg/L	0.000063	0.00048	1.0
Hexachlorobutadiene	<0.0048	mg/L	0.00024	0.0048	1.0
Hexachlorocyclopentadiene	<0.019	mg/L	0.0042	0.019	1.0
Hexachloroethane	<0.0048	mg/L	0.00024	0.0048	1.0
Indeno[1,2,3-cd]pyrene	<0.00019	mg/L	0.000069	0.00019	1.0
Isophorone	<0.0019	mg/L	0.00056	0.0019	1.0
2-Methylnaphthalene	<0.00048	mg/L	0.00015	0.00048	1.0
2-Methylphenol	<0.0019	mg/L	0.00041	0.0019	1.0
3 & 4 Methylphenol	<0.0019	mg/L	0.00018	0.0019	1.0
Naphthalene	<0.00096	mg/L	0.000096	0.00096	1.0
2-Nitroaniline	<0.0048	mg/L	0.00053	0.0048	1.0
3-Nitroaniline	<0.0096	mg/L	0.00096	0.0096	1.0
4-Nitroaniline	<0.0096	mg/L	0.0022	0.0096	1.0
Nitrobenzene	<0.00096	mg/L	0.00029	0.00096	1.0
2-Nitrophenol	<0.0096	mg/L	0.00062	0.0096	1.0
4-Nitrophenol	<0.019	mg/L	0.0023	0.019	1.0
N-Nitrosodi-n-propylamine	<0.00048	mg/L	0.00014	0.00048	1.0
N-Nitrosodiphenylamine	<0.00096	mg/L	0.00019	0.00096	1.0
2,2'-oxybis[1-chloropropane]	<0.0019	mg/L	0.00019	0.0019	1.0
Pentachlorophenol	<0.019	mg/L	0.0020	0.019	1.0
Phenanthrene	<0.00096	mg/L	0.000068	0.00096	1.0
Phenol	<0.0048	mg/L	0.0012	0.0048	1.0
Pyrene	<0.00096	mg/L	0.000068	0.00096	1.0
1,2,4-Trichlorobenzene	<0.0019	mg/L	0.00023	0.0019	1.0
2,4,5-Trichlorophenol	<0.0096	mg/L	0.0025	0.0096	1.0
2,4,6-Trichlorophenol	<0.0048	mg/L	0.00064	0.0048	1.0

Surrogate	Acceptance Limits				
2-Fluorobiphenyl	65	%	37 - 120		
2-Fluorophenol	37	%	20 - 110		
Nitrobenzene-d5	58	%	42 - 120		
Phenol-d5	25	%	20 - 110		
Terphenyl-d14	67	%	39 - 120		
2,4,6-Tribromophenol	73	%	41 - 122		

Method: Total Recoverable-6020

Prep Method: 3005A

Aluminum	27	mg/L	0.022	0.10	1.0
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Date Analyzed: 10/12/2009 1434

Date Prepared: 10/12/2009 0730

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Job Number: 500-21700-1

Client Sample ID: BG-SW01-100709  
Lab Sample ID: 500-21700-4

Date Sampled: 10/07/2009 1500  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Barium	0.18	mg/L	0.00057	0.0025	1.0
Potassium	23	mg/L	0.10	0.50	1.0
Silver	0.0073	mg/L	0.000094	0.00050	1.0
Thallium	0.0039	mg/L	0.00030	0.0020	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/12/2009 2021		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Beryllium	0.0041	mg/L	0.00027	0.0010	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/14/2009 1415		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Antimony	0.0045 J	mg/L	0.00080	0.010	5.0
Cadmium	0.39 B	mg/L	0.00080	0.0025	5.0
Magnesium	250	mg/L	0.12	1.0	5.0
Sodium	0.96 J B	mg/L	0.12	1.0	5.0
Method: Total Recoverable-6020			Date Analyzed: 10/14/2009 1420		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Arsenic	0.22	mg/L	0.0030	0.020	20
Calcium	1300	mg/L	1.4	4.0	20
Chromium	0.047 J	mg/L	0.017	0.10	20
Cobalt	0.19	mg/L	0.0011	0.020	20
Copper	0.40 B	mg/L	0.0092	0.040	20
Iron	230	mg/L	0.48	2.0	20
Lead	63 B	mg/L	0.0010	0.010	20
Magnesium	260	mg/L	0.49	4.0	20
Manganese	7.1	mg/L	0.0056	0.050	20
Nickel	0.37 B	mg/L	0.0048	0.040	20
Selenium	<0.050	mg/L	0.0086	0.050	20
Vanadium	0.029 J	mg/L	0.012	0.10	20
Method: Total Recoverable-6020			Date Analyzed: 10/20/2009 1718		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Zinc	130 B	mg/L	0.66	2.0	100
Method: 7470A			Date Analyzed: 10/13/2009 1404		
Prep Method: 7470A			Date Prepared: 10/13/2009 0915		
Mercury	0.00039	mg/L	0.000078	0.00020	1.0
Method: 9040B			Date Analyzed: 10/09/2009 1526		
pH	7.27 HF	SU	0.200	0.200	1.0



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Job Number: 500-21700-1

Client Sample ID: BG-SW02-100709  
Lab Sample ID: 500-21700-5

Date Sampled: 10/07/2009 1545  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Method: 8260B		Date Analyzed: 10/14/2009 0357			
Prep Method: 5030B		Date Prepared: 10/14/2009 0357			
Acetone	<0.0050	mg/L	0.0021	0.0050	1.0
Benzene	<0.0010	mg/L	0.00015	0.0010	1.0
Bromodichloromethane	<0.0010	mg/L	0.00013	0.0010	1.0
Bromoform	<0.0010	mg/L	0.00030	0.0010	1.0
Bromomethane	<0.0010	mg/L	0.00045	0.0010	1.0
Carbon disulfide	<0.0050	mg/L	0.00066	0.0050	1.0
Carbon tetrachloride	<0.0010	mg/L	0.00032	0.0010	1.0
Chlorobenzene	<0.0010	mg/L	0.00017	0.0010	1.0
Chloroethane	<0.0010	mg/L	0.00036	0.0010	1.0
Chloroform	<0.0010	mg/L	0.00015	0.0010	1.0
Chloromethane	<0.0010	mg/L	0.00014	0.0010	1.0
cis-1,2-Dichloroethene	<0.0010	mg/L	0.00015	0.0010	1.0
cis-1,3-Dichloropropene	<0.0010	mg/L	0.00016	0.0010	1.0
Dibromochloromethane	<0.0010	mg/L	0.00017	0.0010	1.0
1,1-Dichloroethane	<0.0010	mg/L	0.00012	0.0010	1.0
1,2-Dichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1-Dichloroethene	<0.0010	mg/L	0.00023	0.0010	1.0
1,2-Dichloropropane	<0.0010	mg/L	0.00019	0.0010	1.0
1,3-Dichloropropene, Total	<0.0010	mg/L	0.00021	0.0010	1.0
Ethylbenzene	<0.0010	mg/L	0.00022	0.0010	1.0
2-Hexanone	<0.0050	mg/L	0.00077	0.0050	1.0
Methylene Chloride	<0.0020	mg/L	0.00052	0.0020	1.0
Methyl Ethyl Ketone	<0.0050	mg/L	0.0028	0.0050	1.0
methyl isobutyl ketone	<0.0050	mg/L	0.00077	0.0050	1.0
Methyl tert-butyl ether	<0.0010	mg/L	0.00016	0.0010	1.0
Styrene	<0.0010	mg/L	0.00017	0.0010	1.0
1,1,2,2-Tetrachloroethane	<0.0010	mg/L	0.00027	0.0010	1.0
Tetrachloroethene	<0.0010	mg/L	0.00020	0.0010	1.0
Toluene	<0.0010	mg/L	0.00017	0.0010	1.0
trans-1,2-Dichloroethene	<0.0010	mg/L	0.00018	0.0010	1.0
trans-1,3-Dichloropropene	<0.0010	mg/L	0.00021	0.0010	1.0
1,1,1-Trichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1,2-Trichloroethane	<0.0010	mg/L	0.00022	0.0010	1.0
Trichloroethene	<0.0010	mg/L	0.00016	0.0010	1.0
Vinyl chloride	<0.0010	mg/L	0.00015	0.0010	1.0
Xylenes, Total	<0.0020	mg/L	0.00042	0.0020	1.0
Surrogate			Acceptance Limits		
4-Bromofluorobenzene (Surr)	88	%	77 - 120		

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Job Number: 500-21700-1

Client Sample ID: BG-SW02-100709  
Lab Sample ID: 500-21700-5

Date Sampled: 10/07/2009 1545  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Surrogate				Acceptance Limits	
Dibromofluoromethane	110	%		79 - 133	
1,2-Dichloroethane-d4 (Surr)	113	%		72 - 135	
Toluene-d8 (Surr)	95	%		80 - 120	
Method: 8270C		Date Analyzed: 10/13/2009 1747			
Prep Method: 3510C		Date Prepared: 10/12/2009 0803			
Acenaphthene	<0.0010	mg/L	0.000060	0.0010	1.0
Acenaphthylene	<0.0010	mg/L	0.000060	0.0010	1.0
Anthracene	<0.0010	mg/L	0.000070	0.0010	1.0
Benzo[a]anthracene	<0.00013	mg/L	0.000068	0.00013	1.0
Benzo[a]pyrene	<0.00021	mg/L	0.000045	0.00021	1.0
Benzo[b]fluoranthene	<0.00019	mg/L	0.000043	0.00019	1.0
Benzo[g,h,i]perylene	<0.0010	mg/L	0.00011	0.0010	1.0
Benzo[k]fluoranthene	<0.00018	mg/L	0.000081	0.00018	1.0
Bis(2-chloroethoxy)methane	<0.0021	mg/L	0.00014	0.0021	1.0
Bis(2-chloroethyl)ether	<0.0021	mg/L	0.00025	0.0021	1.0
Bis(2-ethylhexyl) phthalate	<0.010	mg/L	0.0020	0.010	1.0
4-Bromophenyl phenyl ether	<0.0052	mg/L	0.00016	0.0052	1.0
Butyl benzyl phthalate	<0.0021	mg/L	0.00021	0.0021	1.0
Carbazole	<0.0052	mg/L	0.00085	0.0052	1.0
4-Chloroaniline	<0.010	mg/L	0.00080	0.010	1.0
4-Chloro-3-methylphenol	<0.010	mg/L	0.0025	0.010	1.0
2-Chloronaphthalene	<0.0021	mg/L	0.00018	0.0021	1.0
2-Chlorophenol	<0.0052	mg/L	0.00022	0.0052	1.0
4-Chlorophenyl phenyl ether	<0.0052	mg/L	0.00025	0.0052	1.0
Chrysene	<0.00052	mg/L	0.000070	0.00052	1.0
Dibenz(a,h)anthracene	<0.00031	mg/L	0.000059	0.00031	1.0
Dibenzofuran	<0.0021	mg/L	0.00025	0.0021	1.0
1,2-Dichlorobenzene	<0.0021	mg/L	0.00021	0.0021	1.0
1,3-Dichlorobenzene	<0.0021	mg/L	0.00022	0.0021	1.0
1,4-Dichlorobenzene	<0.0021	mg/L	0.00021	0.0021	1.0
3,3'-Dichlorobenzidine	<0.0052	mg/L	0.00026	0.0052	1.0
2,4-Dichlorophenol	<0.010	mg/L	0.0033	0.010	1.0
Diethyl phthalate	<0.0021	mg/L	0.00021	0.0021	1.0
2,4-Dimethylphenol	<0.010	mg/L	0.0011	0.010	1.0
Dimethyl phthalate	<0.0021	mg/L	0.00013	0.0021	1.0
Di-n-butyl phthalate	<0.0052	mg/L	0.00066	0.0052	1.0
4,6-Dinitro-2-methylphenol	<0.021	mg/L	0.0019	0.021	1.0
2,4-Dinitrophenol	<0.021	mg/L	0.0032	0.021	1.0
2,4-Dinitrotoluene	<0.0010	mg/L	0.00046	0.0010	1.0

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Job Number: 500-21700-1

Client Sample ID: BG-SW02-100709  
Lab Sample ID: 500-21700-5

Date Sampled: 10/07/2009 1545  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
2,6-Dinitrotoluene	<0.00052	mg/L	0.00012	0.00052	1.0
Di-n-octyl phthalate	<0.010	mg/L	0.0018	0.010	1.0
Fluoranthene	<0.0010	mg/L	0.000070	0.0010	1.0
Fluorene	<0.0010	mg/L	0.000059	0.0010	1.0
Hexachlorobenzene	<0.00052	mg/L	0.000068	0.00052	1.0
Hexachlorobutadiene	<0.0052	mg/L	0.00026	0.0052	1.0
Hexachlorocyclopentadiene	<0.021	mg/L	0.0045	0.021	1.0
Hexachloroethane	<0.0052	mg/L	0.00026	0.0052	1.0
Indeno[1,2,3-cd]pyrene	<0.00021	mg/L	0.000074	0.00021	1.0
Isophorone	<0.0021	mg/L	0.00060	0.0021	1.0
2-Methylnaphthalene	<0.00052	mg/L	0.00016	0.00052	1.0
2-Methylphenol	<0.0021	mg/L	0.00044	0.0021	1.0
3 & 4 Methylphenol	<0.0021	mg/L	0.00020	0.0021	1.0
Naphthalene	<0.0010	mg/L	0.00010	0.0010	1.0
2-Nitroaniline	<0.0052	mg/L	0.00057	0.0052	1.0
3-Nitroaniline	<0.010	mg/L	0.0010	0.010	1.0
4-Nitroaniline	<0.010	mg/L	0.0024	0.010	1.0
Nitrobenzene	<0.0010	mg/L	0.00031	0.0010	1.0
2-Nitrophenol	<0.010	mg/L	0.00066	0.010	1.0
4-Nitrophenol	<0.021	mg/L	0.0025	0.021	1.0
N-Nitrosodi-n-propylamine	<0.00052	mg/L	0.00015	0.00052	1.0
N-Nitrosodiphenylamine	<0.0010	mg/L	0.00021	0.0010	1.0
2,2'-oxybis[1-chloropropane]	<0.0021	mg/L	0.00021	0.0021	1.0
Pentachlorophenol	<0.021	mg/L	0.0022	0.021	1.0
Phenanthrene	<0.0010	mg/L	0.000073	0.0010	1.0
Phenol	<0.0052	mg/L	0.0013	0.0052	1.0
Pyrene	<0.0010	mg/L	0.000073	0.0010	1.0
1,2,4-Trichlorobenzene	<0.0021	mg/L	0.00025	0.0021	1.0
2,4,5-Trichlorophenol	<0.010	mg/L	0.0027	0.010	1.0
2,4,6-Trichlorophenol	<0.0052	mg/L	0.00069	0.0052	1.0

Surrogate

Acceptance Limits

2-Fluorobiphenyl	55	%	37 - 120
2-Fluorophenol	32	%	20 - 110
Nitrobenzene-d5	50	%	42 - 120
Phenol-d5	22	%	20 - 110
Terphenyl-d14	65	%	39 - 120
2,4,6-Tribromophenol	62	%	41 - 122

Method: Total Recoverable-6020

Date Analyzed: 10/12/2009 1439

Prep Method: 3005A

Date Prepared: 10/12/2009 0730

Aluminum	0.025	J	mg/L	0.022	0.10	1.0
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Job Number: 500-21700-1

Client Sample ID: BG-SW02-100709  
Lab Sample ID: 500-21700-5

Date Sampled: 10/07/2009 1545  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Arsenic	0.00029 J	mg/L	0.00015	0.0010	1.0
Barium	0.022	mg/L	0.00057	0.0025	1.0
Chromium	<0.0050	mg/L	0.00084	0.0050	1.0
Copper	0.0037 B	mg/L	0.00046	0.0020	1.0
Iron	0.25	mg/L	0.024	0.10	1.0
Manganese	0.087	mg/L	0.00028	0.0025	1.0
Nickel	0.016 B	mg/L	0.00024	0.0020	1.0
Potassium	3.9	mg/L	0.10	0.50	1.0
Selenium	<0.0025	mg/L	0.00043	0.0025	1.0
Silver	<0.00050	mg/L	0.000094	0.00050	1.0
Thallium	<0.0020	mg/L	0.00030	0.0020	1.0
Vanadium	<0.0050	mg/L	0.00061	0.0050	1.0
Zinc	3.2 B	mg/L	0.0066	0.020	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/12/2009 2025		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Beryllium	<0.0010	mg/L	0.00027	0.0010	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/14/2009 1425		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Antimony	<0.0020	mg/L	0.00016	0.0020	1.0
Cobalt	0.0011	mg/L	0.000053	0.0010	1.0
Lead	0.020 B	mg/L	0.000050	0.00050	1.0
Magnesium	64	mg/L	0.024	0.20	1.0
Sodium	7.4 B	mg/L	0.024	0.20	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/19/2009 1946		
Prep Method: 3005A			Date Prepared: 10/19/2009 0800		
Cadmium	0.0012 J+	mg/L	0.00016	0.00050	1.0
Method: Total Recoverable-6020			Date Analyzed: 10/20/2009 1722		
Prep Method: 3005A			Date Prepared: 10/12/2009 0730		
Calcium	400	mg/L	0.71	2.0	10
Method: 7470A			Date Analyzed: 10/13/2009 1406		
Prep Method: 7470A			Date Prepared: 10/13/2009 0915		
Mercury	<0.00020	mg/L	0.000078	0.00020	1.0
Method: 9040B			Date Analyzed: 10/09/2009 1535		
pH	7.60 HF	SU	0.200	0.200	1.0

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Job Number: 500-21700-1

Client Sample ID: TRIP BLANK  
Lab Sample ID: 500-21700-6

Date Sampled: 10/06/2009 0000  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Method: 8260B		Date Analyzed: 10/14/2009 0418			
Prep Method: 5030B		Date Prepared: 10/14/2009 0418			
Acetone	<0.0050	mg/L	0.0021	0.0050	1.0
Benzene	<0.0010	mg/L	0.00015	0.0010	1.0
Bromodichloromethane	<0.0010	mg/L	0.00013	0.0010	1.0
Bromoform	<0.0010	mg/L	0.00030	0.0010	1.0
Bromomethane	<0.0010 <i>VS</i>	mg/L	0.00045	0.0010	1.0
Carbon disulfide	<0.0050	mg/L	0.00066	0.0050	1.0
Carbon tetrachloride	<0.0010	mg/L	0.00032	0.0010	1.0
Chlorobenzene	<0.0010	mg/L	0.00017	0.0010	1.0
Chloroethane	<0.0010	mg/L	0.00036	0.0010	1.0
Chloroform	<0.0010	mg/L	0.00015	0.0010	1.0
Chloromethane	<0.0010	mg/L	0.00014	0.0010	1.0
cis-1,2-Dichloroethene	<0.0010	mg/L	0.00015	0.0010	1.0
cis-1,3-Dichloropropene	<0.0010	mg/L	0.00016	0.0010	1.0
Dibromochloromethane	<0.0010	mg/L	0.00017	0.0010	1.0
1,1-Dichloroethane	<0.0010	mg/L	0.00012	0.0010	1.0
1,2-Dichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1-Dichloroethene	<0.0010	mg/L	0.00023	0.0010	1.0
1,2-Dichloropropane	<0.0010	mg/L	0.00019	0.0010	1.0
1,3-Dichloropropene, Total	<0.0010	mg/L	0.00021	0.0010	1.0
Ethylbenzene	<0.0010	mg/L	0.00022	0.0010	1.0
2-Hexanone	<0.0050	mg/L	0.00077	0.0050	1.0
Methylene Chloride	<0.0020	mg/L	0.00052	0.0020	1.0
Methyl Ethyl Ketone	<0.0050	mg/L	0.0028	0.0050	1.0
methyl isobutyl ketone	<0.0050	mg/L	0.00077	0.0050	1.0
Methyl tert-butyl ether	<0.0010	mg/L	0.00016	0.0010	1.0
Styrene	<0.0010	mg/L	0.00017	0.0010	1.0
1,1,2,2-Tetrachloroethane	<0.0010	mg/L	0.00027	0.0010	1.0
Tetrachloroethene	<0.0010	mg/L	0.00020	0.0010	1.0
Toluene	<0.0010	mg/L	0.00017	0.0010	1.0
trans-1,2-Dichloroethene	<0.0010	mg/L	0.00018	0.0010	1.0
trans-1,3-Dichloropropene	<0.0010	mg/L	0.00021	0.0010	1.0
1,1,1-Trichloroethane	<0.0010	mg/L	0.00014	0.0010	1.0
1,1,2-Trichloroethane	<0.0010	mg/L	0.00022	0.0010	1.0
Trichloroethene	<0.0010	mg/L	0.00016	0.0010	1.0
Vinyl chloride	<0.0010	mg/L	0.00015	0.0010	1.0
Xylenes, Total	<0.0020	mg/L	0.00042	0.0020	1.0
Surrogate			Acceptance Limits		
4-Bromofluorobenzene (Surr)	89	%	77 - 120		

Lisa Graczyk  
Weston Solutions, Inc.  
20 N Wacker Dr  
Chicago, IL 60602-4206

Job Number: 500-21700-1

Client Sample ID: TRIP BLANK  
Lab Sample ID: 500-21700-6

Date Sampled: 10/06/2009 0000  
Date Received: 10/09/2009 1445  
Client Matrix: Water

Analyte	Result/Qualifier	Unit	MDL	RL	Dilution
Surrogate				Acceptance Limits	
Dibromofluoromethane	111	%		79 - 133	
1,2-Dichloroethane-d4 (Surr)	111	%		72 - 135	
Toluene-d8 (Surr)	95	%		80 - 120	

## DATA REPORTING QUALIFIERS

Client: Weston Solutions, Inc.

Job Number: 500-21700-1

Lab Section	Qualifier	Description
Metals		
	B	Compound was found in the blank and sample.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
General Chemistry		
	HF	Field parameter with a holding time of 15 minutes

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**APPENDIX C**  
**U.S. EPA FIELDS SIMPLE LINEAR REGRESSION**  
**AND DIAGNOSTICS RESULTS**

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**Bautsch-Gray Mine Site  
(Superfund Removal Assessment)  
Simple Linear Regression and Diagnostics Results  
(October 2009 sampling event)**

Prepared By  
John Bing-Canar, FIELDS Group, US EPA, Region V  
Charles Roth, FIELDS Group, US EPA, Region V

13 November 2009

Simple linear regression and regression diagnostics were used to find the “best fitting” linear relationship between XRF measurements of metals in soil and tailings and their corresponding laboratory measurements using the SAS<sup>®</sup> software. This relationship is quantified into a model (equation) of XRF measurements of a metal and its corresponding laboratory measurement. The statistical methods employed were drawn from SAS<sup>®</sup> literature and three regression texts: Statistical Methods in Water Resources, 1992; and Applied Regression Analysis and Other Multivariate Methods, 1978 and 1988. (See “References” section for a complete list of regression resources.) Simple linear regression was performed for Lead (Pb). The data set used was from the October 2009 sampling event at the Bautsch-Gray Mine site. Sample collection was performed by the FIELDS Group and Weston, a U.S. EPA contractor, under the direction of Len Zintak, U.S. EPA On-Scene Coordinator (OSC).

The steps used to perform simple linear regression were:

1. Plot the data;
2. Computer the least squares regression statistics;
3. Examine adherence to the assumptions of regression using residual plots; and
4. Employ regression diagnostics (Helsel and Hirsch, 1992).

### Lead (Pb)

There was a statistically significant linear regression relationship between XRF Lead values and their corresponding Laboratory value (see Figure 1, p-value associated with the F-value). However, given that there were two different matrices (soil and tailings) at the site, a comparison of regression lines was performed. (These comparisons are often called a test of parallelism and a test of equal intercepts.) These tests evaluate if there are different slopes and/or different intercepts for the regression equation depending on the matrix. Figure 2 demonstrates that there may be differences in slopes and intercepts for Lead values found in soil and tailings. Statistical confirmation that indeed there are differences in the slopes and intercepts by matrix is shown in Figure 3. In the bottom panel of Figure 3, the Type III sum of squares are shown. (The Type III sum of squares are used since the data are unbalanced, i.e., there is not an equal number of XRF and Lab Lead values by matrix. There were 21 XRF and Lab Lead values measured in soil but only 11 measured in tailings.) The p-values associated with the F-values demonstrate that the slopes (Pb\*SAMPLE\_TYPE) and the intercepts (SAMPLE\_TYPE) are different by matrix. These results indicate that further regression and regression diagnostics need to be performed on each matrix separately.

Although the same model of InnovX XRF,  $\alpha 4000$ , was used to measure metal levels at the site, the possibility of differing results by device had to be evaluated since two XRFs with different serial numbers were used. As described above statistical tests were run to evaluate if there were different slopes and/or different intercepts for the regression equation depending on the XRF device. There were no statistically significant differences in slopes or intercepts for the regression equation by device (results not shown). Hence, further regression and regression diagnostics need to be performed only by different matrix, not also different XRF serial number.

### Lead (Pb) in Soil

There was a statistically significant linear regression relationship between XRF Lead values and their corresponding Laboratory value, in soil. However, regression diagnostics found that some of the assumptions of regression were violated. These violations included heteroscedasticity and a lack of normality for these residuals (results not shown). To overcome these violations, the natural log of the XRF Lead values and their corresponding Laboratory value was taken. Figure 4 shows that there was a statistically significant linear regression relationship between the natural log of the XRF Lead values and their corresponding natural log of the Laboratory value, in soil. Figures 5 and 6 demonstrate that the assumptions of regression were met. Figure 5 shows that the residuals are homoscedastic and none of the Studentized residuals are greater than 2.5, a value used as a rule of thumb for potential outliers. Figure 6 shows that the residuals are normally distributed. (The null hypothesis of each of these four tests is that the residuals are from a normal distribution. If using an alpha value of 0.05, one would fail to reject the null hypothesis.) Normality of residuals is required in order to test the hypothesis that “the slope coefficient ( $\beta_1$ ) is significantly different from zero” (Helsel and Hirsch, 1992).

In other words, in order to demonstrate a linear relationship between the two variables, XRF and Lab, the slope coefficient must be significant. The White test also found that the variance of the residuals were homogenous (results not shown). A visualization of the linear relationship between the Lead XRF and Lab values in soil is shown in Figure 7.

The parameters of the best linear fit equation for the relationship of Lead XRF and Lab values in soil are:

$$\text{Adjusted LN Lead} = 0.45 + (1.00) * (\text{LN XRF Lead value})$$

However, as this equation is in natural log space, the antilog of the adjusted Lead value must be taken. For example, for an XRF Lead reading of 400ppm (5.99ppm in natural log space), the Adjusted LN\_Pb value is 6.47ppm. The antilog of this value is 645ppm. Hence, an XRF Lead reading in soil of 400ppm is equivalent to an adjusted XRF Lead value of 645ppm in soil.

#### Lead (Pb) in Tailings

There was a statistically significant linear regression relationship between XRF Lead values and their corresponding Laboratory value, in tailings. However, regression diagnostics found that some of the assumptions of regression were violated. These violations included heteroscedasticity and a downward trend in the residuals (results not shown). To overcome these violations, the natural log of the XRF Lead values and their corresponding Laboratory value was taken. Figure 8 shows that there was a statistically significant linear regression relationship between the natural log of the XRF Lead values and their corresponding natural log of the Laboratory value, in soil. Figures 9 and 10 demonstrate that the assumptions of regression were met. Figure 9 shows that the residuals are homoscedastic and none of the Studentized residuals are greater than 2.5, a value used as a rule of thumb for potential outliers. Figure 10 shows that the residuals are normally distributed. (The null hypothesis of each of these four tests is that the residuals are from a normal distribution. If using an alpha value of 0.05, one would fail to reject the null hypothesis.) Normality of residuals is required in order to test the hypothesis that “the slope coefficient ( $\beta_1$ ) is significantly different from zero” (Helsel and Hirsch, 1992). In other words, in order to demonstrate a linear relationship between the two variables, XRF and Lab, the slope coefficient must be significant. The White test also found that the variance of the residuals were homogenous (results not shown). A visualization of the linear relationship between the Lead XRF and Lab values in tailings is shown in Figure 11.

The parameters of the best linear fit equation for the relationship of Lead XRF and Lab values in soil are:

$$\text{Adjusted LN Lead} = 3.26 + (0.59) * (\text{LN XRF Lead value})$$

However, as this equation is in natural log space, the antilog of the adjusted Lead value must be taken. For example, for an XRF Lead reading of 400ppm (5.99ppm in natural log space), the Adjusted LN\_Pb value is 6.82ppm. The antilog of this value is 914ppm. Hence, an XRF Lead reading in tailings of 400ppm is equivalent to an adjusted XRF Lead value of 914ppm in tailings.

There are a couple of caveats to make regarding the regression of Lead XRF and Lab values in tailings. Firstly, there were only 11 observations used for the regression. Although the regression is significant, eleven observations is a low number for regression purposes. Secondly, the XRF used to measure metal levels is calibrated for soil. Its use in non-soil matrices will give different results than in soil. In this case, the XRF readings of Lead in tailings were significantly less than those measured in the laboratory. Nonetheless, the XRF can still be used as an in-field measuring device as the relationship of XRF values and lab values is linear.

## References:

Chen, X., Ender, P., Mitchell, M. and Wells, C. (2003). Regression with SAS, from <http://www.ats.ucla.edu/stat/sas/webbooks/reg/default.htm>

Helsel, D.R. and Hirsch R.M., Statistical Methods in Water Resources, Elsevier, Amsterdam, 1992.

Kleinbaum, D.G. and Kupper, L.L., Applied Regression Analysis and Other Multivariate Methods, Duxbury Press, Boston, Massachusetts, 1978.

Kleinbaum, D.G., Kupper, L.L., and Muller, K.E., Applied Regression Analysis and Other Multivariate Methods, Second Edition. PWS-Kent Publishing Company, Boston, Massachusetts, 1988.

SAS Help, version 9.1.3. Search for "influence statistics", then select "REG procedure"

SAS Institute Inc., SAS/STAT<sup>®</sup> User's Guide, Version 8, Cary, NC: SAS Institute Inc., 1999. (Chapter 55, The REG Procedure)

SAS Institute Inc., SAS<sup>®</sup> System for Regression, Second Edition, Cary, NC: SAS Institute Inc., 1991. 210pp.

## Contact:

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**Regression of the Lead Lab and XRF values**  
**Regression diagnostics**  
**Bautsch-Grey Min Site**  
**October 2009 sampling event**

The REG Procedure  
Model: MODEL1  
Dependent Variable: Lab\_Pb\_ppm Lab Lead (ppm)

Number of Observations Read	32
Number of Observations Used	32

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	58238697	58238697	649.50	<.0001
Error	30	2690021	89667		
Corrected Total	31	60928718			

Root MSE	299.44512	R-Square	0.9558
Dependent Mean	1054.35938	Adj R-Sq	0.9544
Coeff Var	28.40067		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	Intercept	1	43.13505	66.15524	0.65	0.5193
Pb	XRF Lead (ppm)	1	1.47584	0.05791	25.49	<.0001

Figure 1: Simple linear regression output from the SAS software for XRF Lead and Lab values

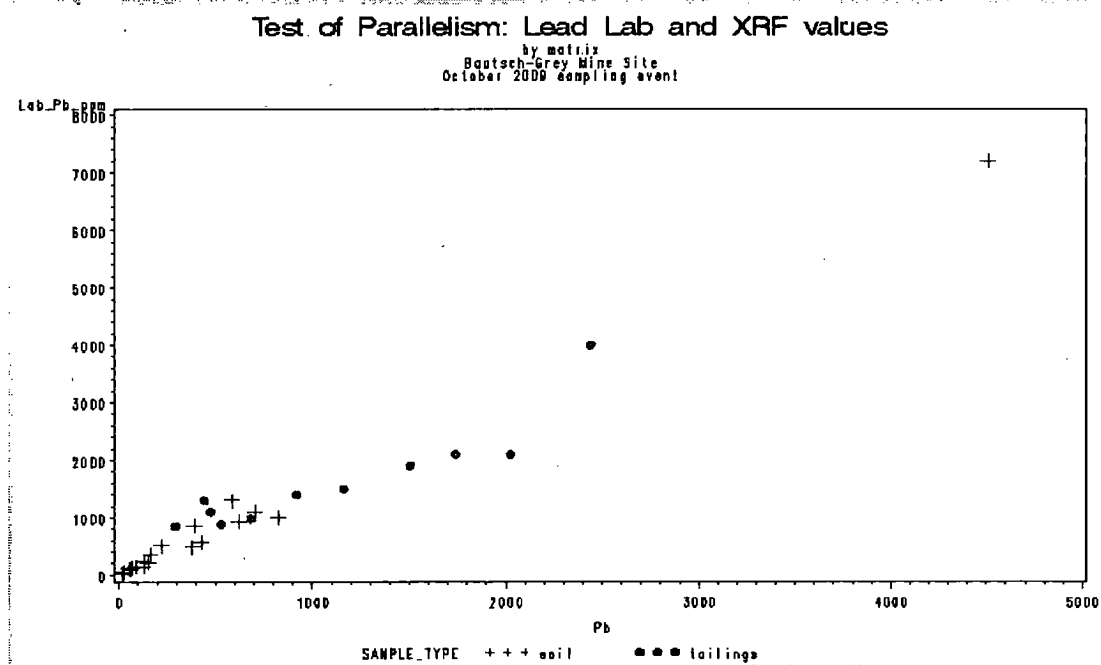


Figure 2: Scatter plot of Laboratory and XRF Lead values by matrix (soil and tailings)

**Test of Parallelism: Lead Lab and XRF values  
by matrix**

**Bautsch-Grey Mine Site  
October 2009 sampling event**

**The GLM Procedure**

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	59115686.81	19705228.94	304.32	< .0001
Error	28	1813031.31	64751.12		
Corrected Total	31	60928718.12			

R Square	Coeff Var	Root MSE	Lab Pb ppm Mean
0.970243	24.13431	254.4624	1054.359

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Pb	1	58238696.69	58238696.69	899.42	< .0001
SAMPLE_TYPE	1	27306.31	27306.31	0.42	0.5214
Pb*SAMPLE_TYPE	1	849683.81	849683.81	13.12	0.0011

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Pb	1	30185627.66	30185627.66	466.18	< .0001
SAMPLE_TYPE	1	367131.26	367131.26	5.67	0.0243
Pb*SAMPLE_TYPE	1	849683.81	849683.81	13.12	0.0011

Figure 3: Test of parallelism and slope for XRF Lead and Lab values by matrix (soil and tailings)

# Regression of the Natural Log of Lead Lab and XRF values

## Regression diagnostics

### Bautsch-Grey Mine Site

October 2009 sampling event

The REG Procedure

Model: MODEL1

Dependent Variable: LN\_lab LN Lab Lead (ppm)

SAMPLE TYPE=soil

Number of Observations Read	21
Number of Observations Used	21

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	38.27451	38.27451	699.76	<.0001
Error	19	1.03924	0.05470		
Corrected Total	20	39.31375			

Root MSE	0.23387	R-Square	0.9736
Dependent Mean	5.63398	Adj R-Sq	0.9722
Coeff Var	4.15113		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	Intercept	1	0.45398	0.20236	2.24	0.0370
LN_XRF	LN XRF Lead (ppm)	1	1.00459	0.03798	26.45	<.0001

Figure 4: Simple linear regression output from the SAS software for XRF Lead and Lab values in soil



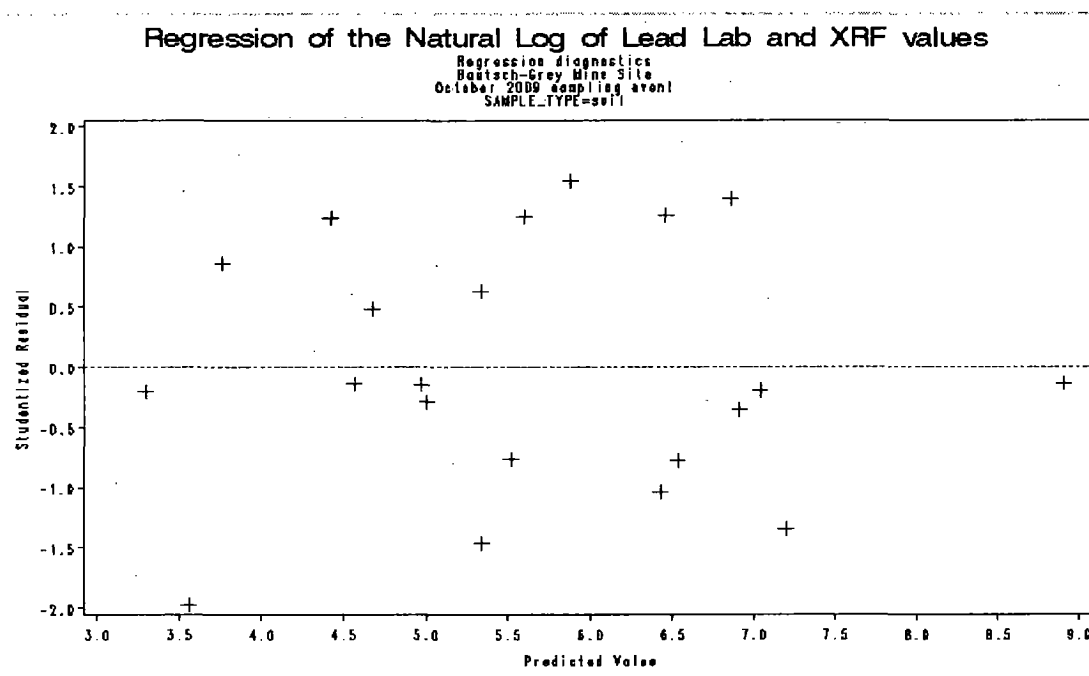


Figure 5: Residual plot from the SAS software for the Natural Log of the XRF Lead and Lab values in soil

Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.918083	Pr < W	0.3030
Kolmogorev-Smirnov	D	0.217294	Pr > D	>0.1500
Cramer-von-Mises	W-Sq	0.0687	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.409801	Pr > A-Sq	>0.2500

Figure 6: Tests of Normality from the SAS software for residuals from the Natural Log of the XRF Lead and Lab values in soil

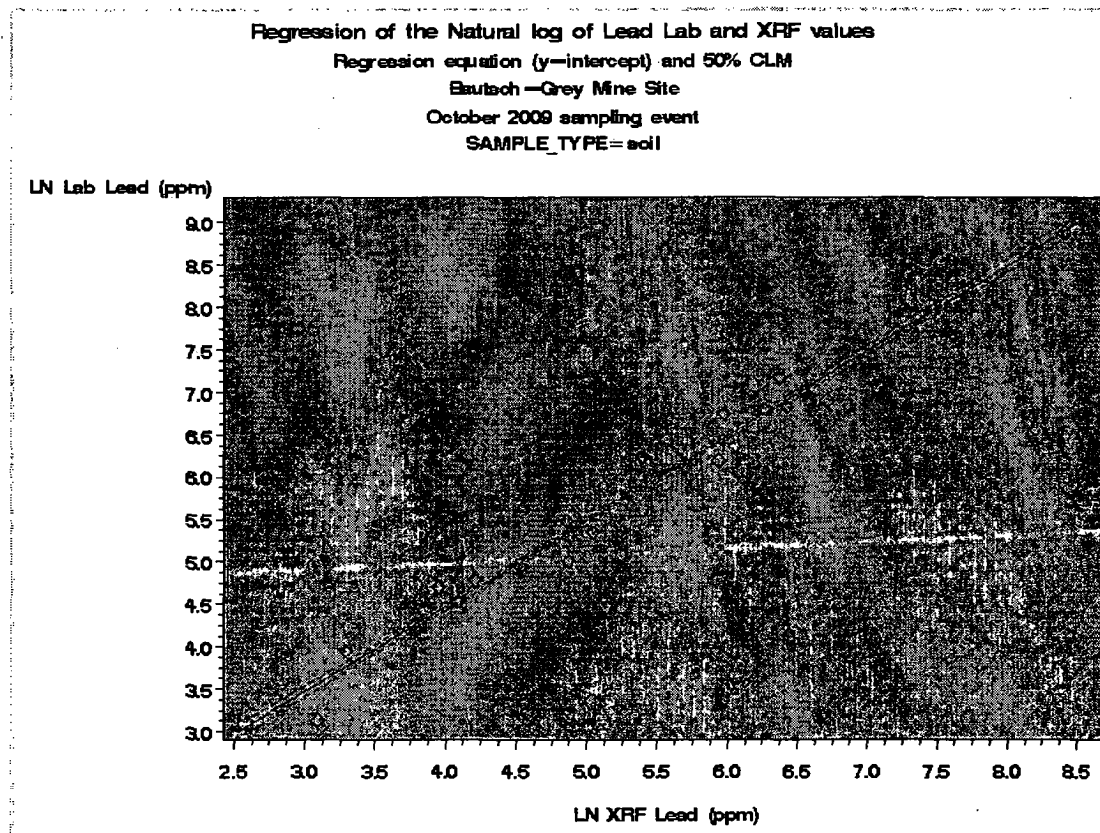


Figure 7: Best-fit linear regression line from the SAS software for the Natural Log of the XRF Lead and Lab values in soil

**Regression of the Natural Log of Lead Lab and XRF values**  
**Regression diagnostics**  
**Bautsch-Grey Mine Site**  
**October 2009 sampling event**

The REG Procedure  
 Model: MODEL1  
 Dependent Variable: LN\_lab LN Lab Lead (ppm)

SAMPLE TYPE=tailings

Number of Observations Read	11
Number of Observations Used	11

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1.73274	1.73274	37.75	0.0002
Error	9	0.41308	0.04590		
Corrected Total	10	2.14582			

Root MSE	0.21424	R-Square	0.8075
Dependent Mean	7.29928	Adj R Sq	0.7861
Coeff Var	2.93505		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	Intercept	1	3.26406	0.65991	4.95	0.0008
LN_XRF	LN XRF Lead (ppm)	1	0.59314	0.09653	6.14	0.0002

Figure 8: Simple linear regression output from the SAS software for XRF Lead and Lab values in tailings

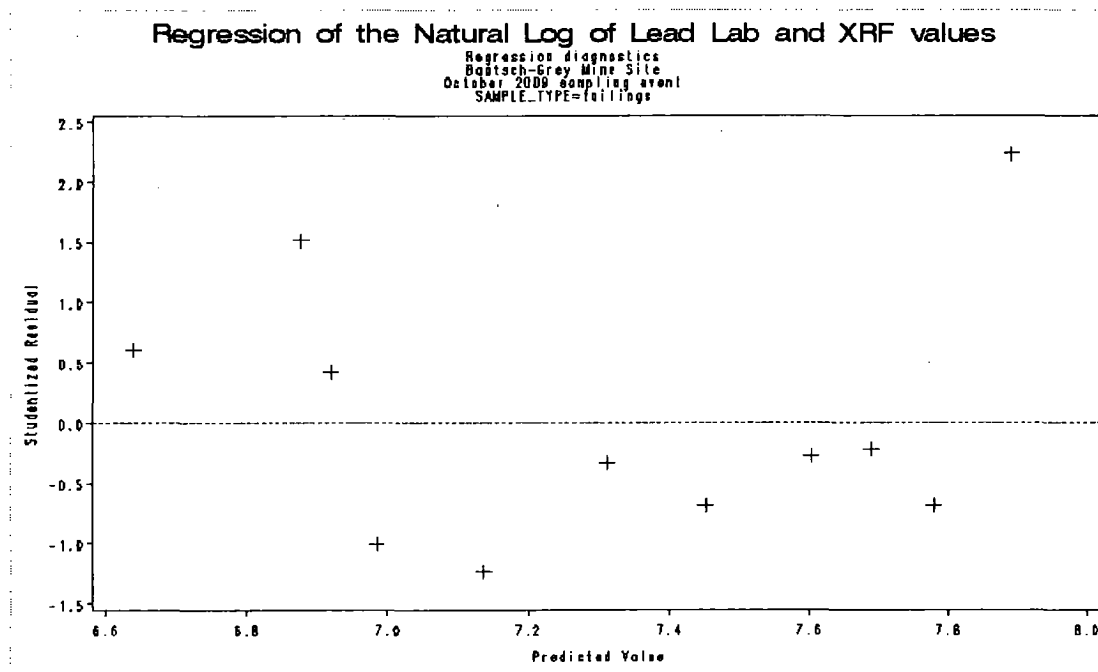


Figure 9: Residual plot from the SAS software for the Natural Log of the XRF Lead and Lab values in tailings

Tests for Normality				
Test	Statistic		p-Value	
Shapiro-Wilk	W	0.950227	Pr < W	0.3440
Kolmogorov-Smirnov	D	0.162783	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.066582	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.402958	Pr > A-Sq	>0.2500

Figure 10: Tests of Normality from the SAS software for residuals from the Natural Log of the XRF Lead and Lab values in tailings

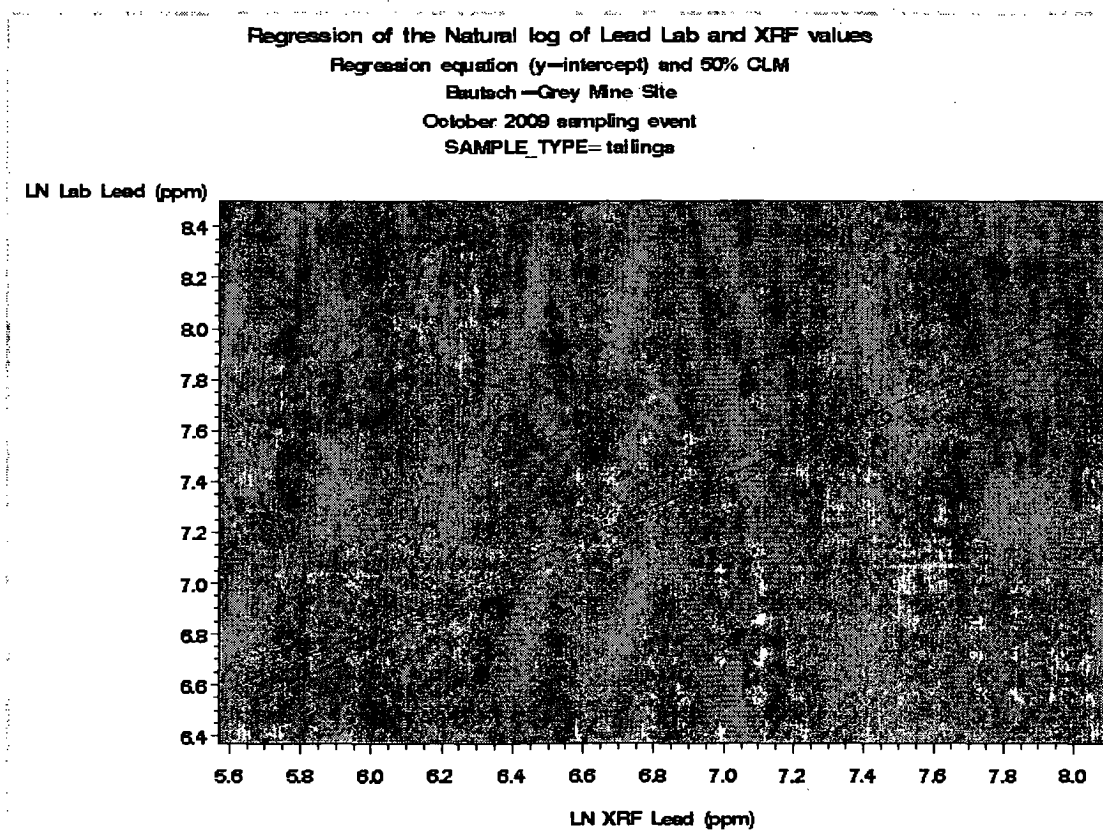


Figure 11: Best-fit linear regression line from the SAS software for the Natural Log of the XRF Lead and Lab values in tailings

**CERCLA  
Expanded Site Inspection Report**

**for:**

**Bautsch-Gray Mine  
ILN 000508088  
Galena, Illinois**

**Prepared by:  
Illinois Environmental Protection Agency  
Bureau of Land  
Division of Remediation Management  
Office of Site Evaluation**

**November 23, 2010**

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## **Section 1.0 Introduction**

On May 8, 2009, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct an Expanded Site Inspection at the Bautsch-Gray Mine Site in Galena, Jo Daviess County, Illinois.

The primary objective of an Expanded Site Inspection is to address critical hypotheses or assumptions that were not completely supported during the Site Inspection. The Expanded Site Inspection will gather information to fully establish background conditions, fill in data gaps, or establish attribution to site operations. At the conclusion of the Expanded Site Inspection, it will be determined whether the site qualifies for possible inclusion on the National Priorities List (NPL) or should be dropped from further Superfund consideration. Additionally, the Expanded Site Inspection supports removal and enforcement actions and collects data to support further Superfund or other response actions.

The Expanded Site Inspection is not intended to be a detailed extent of contamination or risk assessment. Efforts requiring intensive background investigation or specialized techniques are normally conducted during the next phase in the Superfund process after a site is placed on the NPL and becomes eligible for remedial funding. The Expanded Site Inspection is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund.

The Bautsch-Gray Site was originally investigated in the form of a Pre-CERCLIS Screening Assessment in May 2000. The Pre-CERCLIS Screening Assessment identified areas of mine tailings that migrated from the property that once contained the mining activities. The assessment prompted the site to be placed on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) data base on May 15, 2000. In October 2000, Illinois EPA conducted an Integrated Assessment at the abandoned mine site. The investigation documented the presence of mine tailings in nearby residential properties and Smallpox Creek. The investigation also documented that a nearby residential drinking water well was contaminated with inorganic constituents. Illinois EPA recommended that the Bautsch-Gray Mine Site proceed to the Expanded Site Investigation of the CERCLA process.

In October 2001, Illinois EPA conducted an Expanded Site Inspection at the Bautsch-Gray Mine Site. The investigation incorporated data from the 2000 Integrated Assessment along with new data collected within the sediments along Smallpox Creek. The results of the investigation documented that the sediments of Smallpox Creek have been impacted by mine tailings that migrated from the large waste pile.

On September 28, 2009, Illinois EPA prepared and submitted a site-specific Expanded Site Inspection workplan to U.S. EPA Region 5. The field activity portion was conducted during the weeks of November 16, 2009, and January 20, 2010. During the 2009 Expanded Site Inspection, Illinois EPA personnel collected soil, sediment, and waste samples from the Bautsch-Gray Mine Site and surrounding areas. The data was collected in order to provide analytical information that could be used in the preparation of a Hazard Ranking System scoring package. The data will also be used to support time-critical removal activities.

## **Section 2.0 Site Background**

### **Section 2.1 Site Description**

The Bautsch-Gray Mine Site is comprised of an estimated 40-acre mine tailings pile located approximately four miles south of Galena, Illinois on Blackjack Road. The tailings pile can be found at the intersection of Sections 3, 4, 9, and 10 in Rice Township, Jo Daviess County (Figures 1, 2, and 3). The approximate center of the tailings pile can be found at a latitude of 42° 21' 26.72" North and a longitude of 090° 23' 54.85" West. At its highest, the mine tailings pile is approximately 40 feet above the surrounding terrain. The tailings pile is mostly devoid of vegetation with large erosion channels and gullies scattered throughout. Large pieces of metal that appear to be remnants of old mining equipment can be found throughout the site. The general slope of the tailings pile is toward Blackjack Road to the west.

Access to the mine tailings pile is somewhat restrictive with no trespassing signs posted. A large berm, composed of mine tailings, provides a natural barrier along most of the western boundary that parallels Blackjack Road. A locked gate along the northwestern boundary prohibits vehicles from entering the property. A barbed-wire fence prevents vehicular access along the southwestern boundary. There are signs of human intrusion on the mine tailings pile such as shotgun shells, beverage cans, and remnants of small fires.

Several different routes have been identified that channel excess surface runoff from the site. First, the most visible route flows westward to an overflow pipe located near the west-central boundary of the site. The overflow pipe is channeled beneath Blackjack Road and has contributed to the formation of the settling pond west of Blackjack Road. Second, mine tailings have migrated into ditches that parallel Blackjack Road. Once entering into the ditches, excess surface runoff and mine tailings empty into Smallpox Creek approximately ¼ mile north of the tailings pile. Third, recent large rain events have resulted in mine tailings flowing from the tailings pile to the west over Blackjack Road and into a residential property. The mine tailings will either settle out on the property or continue to flow in a northwest direction into a wetland area.

West of the tailings pile is a horse-shoe shaped settling pond. Illustrated in Figures 2 and 3, the settling pond consists of mine tailings that apparently have washed off of the large tailings pile to its east. It is unclear when the surface impoundment was established but according to aerial photographs it has been in place since at least 1970. It is estimated that tailings material in the settling pond varies between 4 and 20 feet in thickness. The settling pond is non-vegetated, except for a small area where cattails are growing located in the southeast corner. One residential dwelling, located west of Blackjack Road, is located on an outcropping of land that is less than 200 feet from the north, west and south sides of the settling pond. According to National Wetlands Inventory Map constructed by the United States Department of the Interior the settling pond is a Paulistrine, unconsolidated bottom, semi-permanently flooded wetland and is illustrated in Figure 4.

The western boundary of the settling pond is composed of a dam consisting of mine tailings. The dam is estimated to be approximately 20 feet above the surrounding terrain. During the 2009 Expanded Site Inspection, the dam was observed to be broken, possibly due to excess surface water and erosion. The breach in the dam is estimated to be approximately 15 feet wide and 20 feet deep. A photograph, contained in Appendix C, was taken to illustrate the broken dam. West of the dam was evidence that mine tailings had and continues to flow beyond the settling pond. The area west of the settling pond was marshy and contained stressed vegetation. During the Expanded Site Inspection surface water was observed to be flowing from the marshy field, through a ditch, and into Smallpox Creek. A large wetland area is located to the northwest of the Bautsch-Gray Mine Site. The wetland is located to the west of Blackjack Road and is identified in Figure 4, Wetlands Inventory Map, as a pre-emergent wetland that is seasonally flooded. During

the November 2009 Expanded Site Inspection it was observed that most of the wetland was covered with six inches to one foot of water. Phragmites, small trees, and other hydrophytes were present throughout the wetland. There was a slight flow of surface water in a north to northwest direction toward Smallpox Creek. According to a 1946 aerial photograph, this area of the wetland appeared to have contained a large concentration of mine tailings. Currently there is visual and analytical evidence of mine tailings entering the wetland.

According to topographical maps of the area, Smallpox Creek is defined as a lower perennial stream. For Hazard Ranking System evaluation purposes, Smallpox Creek is considered a small to moderate stream. According to information gathered from local residents, Smallpox Creek is used for trapping, canoeing, fishing, and gathering clams. Smallpox Creek flows into the Mississippi River near a location designated as the Upper Mississippi River Wild Life and Fish Refuge. At the request of Illinois EPA, Illinois Department of Natural Resources completed an Endangered Species Consultation on October 28, 2009. The consultation concluded that the confluence of the Mississippi River and Smallpox Creek is a Jo Daviess County Illinois Natural Area. The consultation also identified the weed shiner and western sand darter as two protected aquatic species that reside in the Mississippi River at this area of concern.

## Section 2.2 Site History

Lead-zinc mining in the Galena area has a rich history and was believed to have begun sometime during the 1850s. According to information gathered from the Jo Daviess County Tax Assessor's Office, the property on which the Bautsch-Gray Mine Site is located appeared to have been in private ownership throughout much of its existence while leasing mineral rights to different mining companies. Two mines, the Bautsch Mine and the Gray Mine, began operating separately but eventually combined to form one operational lead-zinc mine. According to Jo Daviess County tax records, Mineral Point Zinc was the first known company to have operated from the site beginning in 1927 and continued until the 1940s. Mineral Point Zinc is believed to have operated the Gray Mine. In 1946, Tri-State Zinc, Incorporated developed the Bautsch Mine which at the time was the largest ore body in the district. The county tax records illustrate several changes in property ownership until 1969. In 1969, Eagle Picher was noted to have purchased mineral rights to portions of the site which at that time included both the Bautsch and Gray Mines. Eagle Picher continued to have a presence at the site until at least 1979 and was the last mining entity to have

operated on the property. Currently there are three separate owners of the parcels that make up the site. There are currently no mining activities taking place on the site.

While Eagle Picher was operating the site, several drawings were produced that illustrate the approximate location of the Bautsch Mine and the Gray Mine relative to other features in the area. Copies of the drawing can be found in Appendix E. The drawings indicate that the Bautsch Mine was located to the south of the mine tailings pile while the Gray Mine was located to the north.

In 1971 Illinois EPA issued a National Pollutant Discharge Elimination System (NPDES) permit to Eagle Picher Industries to discharge wastewater into Smallpox Creek. A map, accompanying the permit application, indicated that the Bautsch Mine and Gray Mine both contributed mine tailings to two settling lagoons created within the tailings pile located east of Blackjack Road. The map also indicates that there is a discharge into Smallpox Creek following flow from the two settling lagoons. There is also language contained within the NPDES permit that indicates Smallpox Creek receives surface water discharge from the Bautsch-Gray Mine facility. The NPDES permit was due to expire on October 1, 1979. Official termination of the NPDES permit was documented in a memo from Illinois EPA to Eagle Picher on August 3, 1989. There is no file information that would suggest that the permit was ever renewed after that time.

An aerial photograph from 1946 indicates that the surface impoundment was not present during that time. It appears that waste material generated from the site may have flowed directly into Smallpox Creek as illustrated by a defined channel in the 1946 aerial photograph. A copy of the 1946 aerial photograph can be found in Appendix E. The first visible sign of the surface impoundment can be found in a 1970 aerial photograph.

On July 1, 1999, the gate to the site was found to be unlocked by the Illinois EPA Rockford Regional Office. The Rockford Regional Office personnel found heavy equipment on site that was being used to load mine tailings from the site and into trucks. Immediately following, the owners of the equipment were notified that the tailings were not to be used as clean fill. In May 2000, Illinois EPA issued a press release that warned the public of potential health risks related to mine tailings. The press release stated that mine tailings were being removed from the Bautsch-Gray Mine Site for personal and commercial use. Illinois EPA's Director Thomas Skinner stated that, "lead tailings from mining activities are not safe to use for fill."

### Section 2.3 Previous Investigations

Illinois EPA conducted an Integrated Assessment in October 2000. Analytical results from the Integrated Assessment documented the presence of mine related waste in nearby residential properties and Smallpox Creek. The Integrated Assessment also documented that a nearby private drinking water well had been impacted by the presence of the mine tailings at the Bautsch-Gray Mine Site. Following the inspection, Illinois Department of Public Health recommended that the resident stop using the well for drinking purposes. Currently the resident only consumes bottled water.

In 2001 Illinois EPA conducted sediment sampling activities event within Smallpox Creek for the purpose of determining the impact to this perennial water body. The data were compiled in an Expanded Site Inspection report and was submitted to U.S. EPA Region 5 in March 2002. The inspection documented the presence of heavy metals along two separate drainage routes that enter Smallpox Creek. The sediments within Smallpox Creek were also found to have heavy metal contamination.

During the summer 2009, excess rain resulted in mine tailings washing off the waste pile and migrating over Blackjack Road into a nearby residential property. Illinois EPA was notified of the situation by the Jo Daviess County Highway Department in August 2009. Just after the large rain event, Blackjack Road had an estimated 1-2 feet of mine tailings on the road. The incident prompted an investigation on August 18 and 24, 2009, by Illinois EPA. During the investigation Illinois EPA personnel collected samples from the waste pile, roadside ditch, and a residential property near the Bautsch-Gray Mine Site. The results indicated that elevated levels of lead, zinc, cadmium, and arsenic were present in material that washed off the tailings pile. The results also prompted a request by Illinois EPA for a time-critical removal action to be conducted by U.S. EPA Region 5.

During the week of October 26, 2009, U.S. EPA's Emergency Response Program, their contractors, and Illinois EPA collected additional data for establishing an imminent and substantial threat posed by the Bautsch-Gray Mine Site. At the time of this Expanded Site Inspection Report, U.S. EPA is negotiating with Potentially Responsible Parties (PRPs) to address immediate threats posed by the site.

### Section 2.4 Regulatory Status

Based upon available file information the Bautsch-Gray Mine Site does not appear to be subject to Resource Conservation and Recovery Act (RCRA) corrective action authorities. Information currently available does not indicate that the site is under the authority of the Atomic Energy Act (AEA), Uranium Mine Tailings Action (UMTRCA), or the Federal Insecticide Fungicide or Rodenticide Act (FIFRA).

### **Section 3.0 Expanded Site Inspection Activities**

#### Section 3.1 Sampling Activities

##### Section 3.1.1 Waste Pile Sampling

The samples from the tailings pile were collected using a stainless steel trowel. The waste pile samples were gathered to determine the analytical contents of the mine tailings and provide a basis from which to compare other sample results. These samples were collected using the protocol set forth by Illinois EPA's Bureau of Land sampling procedures.

The waste pile samples were collected within the upper six inches of material. Each sample received an analysis for Target Analyte List (TAL) metals and cyanide. One sample also received Toxicity Characteristic Leaching Procedure (TCLP) analysis for inorganics. Table 1 provides a description of each waste pile sample noting its collection time, collection date, depth, physical appearance, and its general location.

A complete list of TAL metals and cyanide can be found in Appendix B. Samples designated with an "X" prefix represent those that were analyzed for TAL compounds or elements. Samples designated with a "T" prefix indicate that a TCLP analysis was conducted on that sample. A summary of the results that received a TAL analysis can be found in Table 3. Table 7 contains a summary of the TCLP results. A complete set of laboratory data can be found in Volume 2 of the Expanded Site Inspection Report.

Samples X301 through X305 were collected at various locations on the mine tailings pile. Each location was chosen to obtain a better understanding of the inorganic content of the mine tailings. Figure 5 illustrates the locations of each waste sample.

##### Section 3.1.2 Sediment Sampling

During the Expanded Site Inspection, sediment samples were collected from Smallpox Creek, the settling pond, and wetland using different methods and techniques. Most locations within Smallpox Creek were physically accessed using a canoe while the rest were obtained using

chest waders. Each sample was collected with a stainless steel auger or trowel according to Illinois EPA's Bureau of Land sampling procedures. One sediment sample location was also analyzed using TCLP methods for inorganics. Table 1 provides a description of each sediment sample with its sample time, sample date, depth beneath the water, depth within the sediment, and physical appearance.

The sediment samples were analyzed for TAL metals and cyanide. A complete list of TAL metals and cyanide can be found in Appendix B. Maps illustrating the location of each sediment sample that received a TAL analysis can be found in Figures 5 and 6. Samples designated with an "X" prefix represent those that were analyzed for TAL metals and cyanide. Samples designated with a "T" prefix indicate that a TCLP analysis was conducted. Tables 3, 5, and 6 contain the sample results from the settling pond, Smallpox Creek, and the wetland respectively. The summary of the TCLP sample results can be found in Table 7. A complete set of laboratory data can be found in Volume 2 of the Expanded Site Inspection Report.

Samples X211 through X214 were collected from the large wetland located northwest of the Bautsch-Gray Mine tailings pile. The wetland provides a route for surface runoff to drain into Smallpox Creek from the tailings pile. These samples were collected in order to determine if mine tailings may have impacted this pre-emergent wetland. Figure 5 illustrates the location of the sampled collected from the wetland.

Samples X215 through X217 were collected from the settling pond west of Blackjack Road. Visually, it appears that mine tailings are present in the settling pond. The sample locations were chosen in order to determine if the material may be similar to that found in the mine tailings. The sampled collected from the surface impoundment are illustrated in Figure 5.

Samples X200 through X210 and X219-A through X221-B were collected from the sediments of Smallpox Creek. The samples were collected at various depths within the sediments in order to determine if Smallpox Creek has been impacted by the activities at the Bautsch-Gray Mine Site. For the purposes of this Expanded Site Inspection, Samples X200, X201A, X201B, and X202 were collected for the purpose of a background within Smallpox Creek. Samples X219-A, X219-B, X220, X221-A, and X221-B were collected further upstream and away from the influence of all potential sources in the area. The locations of sediment sampled gathered from Smallpox Creek are illustrated in Figure 6.



### Section 3.1.3 Soil Sampling

Soil samples were collected within the top two inches from various locations around the Bautsch-Gray Mine Site using a stainless steel trowel. These samples were collected in accordance to Illinois EPA's Bureau of Land sampling procedures. One soil sample location also received an analysis for TCLP inorganics. Table 1 provides a description of each sample while noting its sample time, sample date, depth, approximate location, and physical appearance.

The soil samples were analyzed for TAL metals and cyanide. A complete list of TAL compounds and analytes can be found in Appendix B. Samples designated with an "X" prefix represent those that were analyzed for TAL metals and cyanide. Samples designated with a "T" prefix indicate that a TCLP method was conducted on that sample. Table 4 contains a complete summary of TAL soil sample results. A summary of the TCLP data can be found in Table 7. Figure 5 is a map that illustrates the location of each soil sample. A complete set of laboratory data can be found in Volume 2 of the Expanded Site Inspection Report.

Soil samples X103 through X108 were collected from an overland flow route leading from the settling pond to Smallpox Creek. This area is well defined by the presence of mine tailings and stressed vegetation. There is a slight flow of surface water toward the west and southwest. These samples were collected to determine if mine tailings were continuing to migrate beyond the settling pond into Smallpox Creek. The locations of these samples are illustrated in Figure 5.

Samples X101 and X102 were taken for the purpose of establishing background soil conditions around the mine tailings area. Sample X101 was collected just to the south of the mine tailings pile while Sample X102 was collected just to the north. These sample locations were chosen due to their proximity to the site, but also appear not to be influenced by past site activities. Figure 5 shows the location of the two soil background samples relative to the Bautsch-Gray Mine Site.

### Section 3.2 Analytical Results

Following the collection of the samples, they were transferred to containers provided by Illinois EPA's Contract Laboratory Program. The sample containers were packaged and sealed in accordance with Illinois EPA's Office of Site Evaluation sampling procedures. Soil, sediment, and waste samples requiring a TAL analysis were sent to Liberty Analytical Corporation and Bonner Analytical. Those samples that were analyzed using TCLP methods were sent to U.S. EPA's

Central Regional Laboratory (CRL). A complete analytical data package for the Bautsch-Gray Mine Site can be found as Volume 2 of the Expanded Site Inspection Report.

The criteria used to determine an observed release is based upon analytical samples that are at least three times background concentrations. Samples that meet or exceed these criteria will be used to evaluate the site using the Hazard Ranking System.

The analytical results of waste samples X301 through X305 revealed the presence of inorganics that meet or exceeded observed release criteria. Arsenic, cadmium, copper, lead, nickel, and zinc were the metals detected in the highest concentrations. These samples were collected from the waste pile on the Bautsch-Gray Mine Site and can be attributable to past mining activities. The waste samples were compared to background soil samples X101 and X102. A summary of the waste samples can be found in Table 2.

Samples X215 through X218 represent sample locations collected from the surface impoundment. When compared to background soil samples X101 and X102, each location contained elevated levels of arsenic, cadmium, copper, lead, and zinc that met observed release criteria. The material in the surface impoundment was both physically and analytically similar to the up-gradient tailings pile and can be attributed to past mining activities. Table 3 contains a summary of the analytical results.

The collection of sediment samples from Smallpox Creek indicated that elevated levels of inorganic contamination were present. Specifically arsenic, cadmium, copper, lead, and zinc were detected within the sediments of Smallpox Creek. These contaminants are similar to those found within the sources associated with the Bautsch-Gray Mine Site, however, not all contaminants can meet observed release criteria. Smallpox Creek has been potentially impacted by two separate mining sites and for that reason attribution by chemical analysis to the Bautsch-Gray Mine cannot be fully determined. Table 5 illustrates the levels of inorganics within the sediment samples of Smallpox Creek.

The collection of sediment samples X219A, X219B, X220, X221A, and X221B were gathered within Smallpox Creek, upgradient from both abandoned mines. The results of these samples can be found in Table 5.

The analysis of soil samples X103 through X108 indicated that inorganic contamination was present along the overland flow route. Once past the surface impoundment, lead, zinc, arsenic, cadmium, and copper were detected at levels that met the observed release criteria. Their

attribution can be linked to up-gradient sources, specifically the surface impoundment and tailings pile. The results of the samples were compared to background soil samples X101 and X102. A summary of the laboratory samples can be found in Table 4.

Samples X211 through X214 represent sediment sample locations collected from the wetland located northwest of the Bautsch-Gray Mine tailings pile. In three of the four samples, zinc was detected at levels that met the observed release criteria. Mine tailings was also observed to be entering the wetland along the southeastern border. The results indicated that portions of the wetland may be impacted by past mining activities. Table 6 contains a summary of the analytical results collected from the wetland.

### Section 3.3 XRF Data and TCLP Results

Prior to sample collection of all media, an X-Ray Fluorescence (XRF) Metal Analyzer was used to determine the levels of inorganics (metals). Based upon the results, a determination was made to collect and analyze a sample for laboratory purposes. Although not used for the Hazard Ranking System, the XRF data provides additional information on many areas in the investigative site. A summary of the XRF results can be found in Table 8.

Three samples were collected and analyzed for TCLP metals. When compared to TCLP values set forth in Subtitle G of Title 35 of the Environmental Protection Act, all three locations exceeded values for lead. One location was chosen from the waste pile, surface impoundment, and the overland flow route. Although TCLP data was not used to evaluate the Bautsch-Gray Mine Site for Hazard Ranking System purposes, this analytical information will assist state and/or federal programs in making site specific hazardous waste determinations. A summary of TCLP results can be found in Table 7.

### Section 3.4 Summary of U.S. EPA Removal Assessment Analytical Data

In the fall 2009, U.S. EPA tasked the Weston Solutions, Inc. (Weston), to assist in performing a site assessment at the Bautsch-Gray Site. They also used their Field Environmental Decision Support (FIELDS) staff to gather site specific information that would support a possible removal action as well as support an HRS listing package.

During the assessment, two residential drinking water wells were sampled and analyzed. The results of sample BG-RW01-100609 indicated lead was detected at 0.027 mg/l which exceeded the Maximum Contaminant Level (MCL) of 0.015 mg/l. This sample was collected from a residential property, located less than ¼ mile west of the Bautsch-Gray Mine tailings pile.

During the U.S. EPA assessment, samples were also collected from the ditch that appears to carry excess surface water toward the north, parallel to Blackjack Road, and empty into Smallpox Creek. Sample BG-S40-100709 indicated that elevated levels of arsenic, cadmium, lead, and zinc exceeded observed release criteria when compared to soil background conditions.

## **Section 4.0 Site Sources**

This section includes descriptions of the various hazardous waste sources that have been identified at the Bautsch-Gray Mine Site. The Hazard Ranking System defines a “source” as: “Any area where a hazardous substance has been stored, disposed or placed, plus those soils that have become contaminated from the migration of hazardous substances.” This does not include surface water or sediments below surface water that have become contaminated.

Information obtained during the Expanded Site Inspection identified three separate areas of contamination at the Bautsch-Gray Mine Site. Figure 7 illustrates the location of each source with their approximate boundaries. As additional information becomes available, the possibility exists that additional sources of contamination may be found.

### **Section 4.1 Mine Tailings Pile**

The Bautsch-Gray Mine Site contains a large area that was used for the disposal of waste material. The material that is present on the site has the general appearance of gray/brown beach sand with dark striations throughout. The material is very porous and contains large pieces of metal that once made up the mining operations. Throughout the tailings pile are eroded valleys and channels that generally slope toward the west. There are large, “canyon-like” ridges throughout the central portion of the tailings pile in which birds burrow into the side walls for nests. Photographs were taken of the birds’ dwellings and can be found in Appendix C. Observations made during the Expanded Site Inspection indicated that the tailings pile, at its highest point, is approximately 40 feet above the surrounding terrain.

Samples X301 – X305 (Table 2) were collected from the waste pile and contained elevated levels of arsenic, cadmium, lead, copper, nickel, and zinc that met or exceeded observed release criteria when compared to background Samples X101 and X102. The type of inorganic contamination can be attributable to activities that once took place on the Bautsch-Gray Mine Site. Using a scaled map, it was determined that the waste pile is approximately 40 acres.

There is no indication that a liner is present beneath the tailings pile. The surface of the waste pile is mostly devoid of any vegetation. A berm, composed of mine tailings, exists along the western boundary and does not appear to completely contain the material. An overflow tube is present along the west-central portion of the tailings pile that allows excess surface water and mine tailings to flow west beneath Blackjack Road and into a settling pond. There is visual evidence that material from the waste pile has migrated from this source to the north, west, and south.

#### Section 4.2 Surface Impoundment (Settling Pond)

An aerial photograph from 1970 indicates the presence of a horseshoe shaped settling pond. The settling pond appears to have utilized the natural contours of the land along with a dam along the western boundary to retain tailings material. The tailings material enters the settling pond by way of an overflow pipe originating from the tailings pile located west of Blackjack Road. The overflow pipe travels beneath Blackjack Road and emerges along the eastern boundary of the settling pond. The solid materials appear to settle in the impoundment while excess surface water either flows to the west or percolates through the porous material.

Samples X215 – X218 (Table 3) were collected within the area designated as the settling pond. When compared to background samples X101 and X102, levels of arsenic, cadmium, lead, copper, and zinc met or exceeded observed release criteria. The areas from which the samples were collected were visibly and analytically similar to those found up-gradient. Using data collected in November 2009 by U.S. EPA's Field Environmental Decision Support (FIELDS) group indicated that the settling pond was approximately 4.8 acres in size. That information is contained in Appendix F.

There is no information that suggests that a liner was placed beneath the settling pond when it was constructed. The surface of the settling pond is mostly devoid of vegetation with only a small area of cattail plants located along the southern portion. The area remains slightly accessible to the public with limited accessibility from Blackjack Road. In November 2009, it was noted that

the western dam of the settling pond has broken. Since the break in the dam, there is nothing impeding the migration of mine tailings from moving toward Smallpox Creek via the overland flow. There is a residential dwelling located within 50 feet of the settling pond.

#### Section 4.3 Contaminated Soil (Overland Flow)

Tailings material that was once present in the settling pond has resulted in an area of contaminated soil. After the mine tailings migrate from the settling pond, they follow the natural contour of the terrain. The terrain has a slight slope that appears to be toward the west and southwest. Due to the topography, the mine tailings are spread throughout the area in a “fan-shaped” pattern. This “fan-shaped” pattern contains mine tailings on the surface and stressed vegetation throughout.

The contaminated soil can be identified by using Samples X103 through X108 (Table 4). These samples were taken in the area believed to have been impacted by the overflow of mine tailings. When compared to soil background Samples X101 and X102, all five locations contained levels of arsenic, cadmium, lead, copper, and zinc that met or exceeded observed release criteria. These inorganic contaminants can be attributed to those found in up-gradient sources. Sediment Samples X206 and X207 were two locations in Smallpox Creek that indicated that the overland flow was entering the creek. Using a scaled aerial photograph and visual observations made during the Expanded Site Inspection, an area of 4.9 acres of contaminated soil was determined. Historical aerial photography also visually illustrates the presence of a light colored material believed to be mine tailings.

The overland flow route provides a mechanism for tailings material to migrate from the settling pond into Smallpox Creek. This source is not contained to prevent excess surface water from carrying additional tailings along this route. As mentioned in Section 4.2, the dike that has suppressed the tailings within the settling pond has broken. Due to this break, the overland flow continues to be impacted from mine tailings flowing from the settling pond. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Map, portions of the overland flow are located within the 100-year flood zone.

#### Section 4.4 Other Potential Sources

The Expanded Site Inspection also revealed an additional source of contamination to Smallpox Creek not associated with Bautsch-Gray Mine. At least one mine tailings pile associated with the abandoned Marsden-Blackjack Mine may be contributing to additional contamination within Smallpox Creek. Excess surface water appears to flow from the mine tailings pile into a small unnamed creek which empties into Smallpox Creek approximately 1500 feet upstream from the Blackjack Road Bridge. Topographic maps of the area illustrate the unnamed creek entering Smallpox Creek. The Marsden-Blackjack Mine is one of the oldest mines in the Galena area and operated from 1854 until 1968. It is currently under private ownership and does not conduct any activities related to mining. Additional information in the Marsden-Blackjack Mine area may be needed to better understand its impact to Smallpox Creek.

## **Section 5.0 Migration Pathways**

As identified in CERCLA's Hazard Ranking System, the Office of Site Evaluation evaluates three migration and one exposure pathway. Sites are evaluated on their known or potential impact these pathways have on human health and the environment. The following paragraphs will evaluate the groundwater, surface water, soil exposure, and air migration pathways.

### **Section 5.1 Groundwater**

Previous site investigations have indicated that three bedrock aquifers are present in the vicinity of the Bautsch-Gray Mine Site. Jo Daviess County lies within the Driftless Area of Northwest Illinois, so-called due to the lack of glacial drift overlying the bedrock. The most shallow bedrock aquifer provides drinking water to most of the area residents and is located generally 0 – 60 feet below ground surface. There are two other aquifers located between 350 and 1300 feet below the ground surface. According to information from the U.S. Department of the Interior, the shallow stratigraphy at the Bautsch Mine is comprised of Maquoketa Shale and Galena Dolomite. These types of overburden are subject to solutioning and will typically cause vertical and horizontal fracturing. This type of fracturing may allow contamination on the surface to migrate toward aquifers beneath the area. According to information from the United States Geological Survey and Illinois EPA, the site is not located within a wellhead protection area.

Sections 4.1, 4.2, and 4.3 have documented the presence of three sources of mine tailings throughout the area. Analysis of each source area indicated the presence of inorganic contamination as well as visual observation of mine tailings. Mine tailings are fine-grained material that would allow surface water to percolate through, thus infiltrating into the shallow groundwater beneath. From each source area, one sample was analyzed for TCLP inorganics during the Expanded Site Inspection. The results of the TCLP analysis indicated that the inorganic contaminants have the ability to leach to the underlying groundwater aquifer.

On October 6 and 7, 2009, U.S. EPA's contractors collected drinking water samples from two residential homes in the area of the Bautsch-Gray Mine Site. Of the two groundwater samples, one location exceeded Maximum Contaminant Levels (MCLs) for lead. This is the same resident that was identified in early investigations that exceeded MCLs in 2000. Following the CERCLA investigation in 2000, that resident was contacted by the Illinois Department of Public Health with the recommendation to use an alternative source of water for drinking purposes. Three individuals have been documented as using that groundwater well. At the time of this Expanded Site Inspection, the resident continues to not use their groundwater well for drinking purposes but the well is still in place. An estimated 385 residential groundwater wells can be found within the 4-mile target distance limit around the Bautsch-Gray Mine Site.

## Section 5.2 Surface Water

According to field observations and topographic maps of the area, excess surface runoff from the Bautsch-Gray Mine Site could flow in three separate directions. Regardless of the three routes, each eventually empties into Smallpox Creek and the Mississippi River. The following paragraphs will describe each route in greater detail.

First, excess surface runoff could travel north within the ditches that parallel Blackjack Road. This is evident by the mine tailings that are visible in the ditches to the east of Blackjack Road. Surface water travels approximately ¼ mile to the north before emptying into Smallpox Creek just east of the Blackjack Road Bridge. Sampling activities conducted during the Expanded Site Inspection did indicate that this route contains mine tailings that are traveling to Smallpox Creek within the roadside ditch, however, due to other possible sources in the area this route is not completely clear.



The second route became prominent during heavy rain activities during the summer of 2009. Excess surface runoff migrated west across Blackjack Road and into a residential property. The surface runoff carried excess mine tailings and deposited them on Blackjack Road and within the residential property. From the residential property, excess surface runoff continues to travel in a northwest direction following the natural contours of the land before reaching a wetland approximately 0.1 mile from the mine tailings pile. Once reaching the wetland there is no discernable flow, but there are several ditches that channel the water toward Smallpox Creek to the north, northwest, and west. Expanded Site Inspection data did indicate that mine tailings were visibly observed entering this wetland but no analytical data indicates this route is contributing to the sediment contamination in Smallpox Creek from the Bautsch-Gray Mine Site.

The third route can be analytically and visibly documented to be impacting Smallpox Creek. Excess surface runoff and mine tailings are channeled to the west from the mine tailings pile to the settling pond. From the settling pond, excess surface runoff and mine tailings migrate west and follow the natural contours of the land before reaching Smallpox Creek approximately 0.2 miles from the settling pond. During the 2009 Expanded Site Inspection, a break was noticed in the dam that once contained the material in the settling pond. Due to this break, there is a continuing uncontrolled migration of surface runoff and mine tailings using this route. During the Expanded Site Inspection, the Illinois EPA sample team also noted that based upon visual observations, mine tailings mixed with surface water from the Bautsch-Gray site were flowing into Smallpox Creek. It is this route that will be used as the Probably Point of Entry (PPE) for this Expanded Site Inspection.

Before entering the PPE, surface runoff flows from the mine tailings pile into the settling pond. From the settling pond, excess surface water follows the natural contour of the terrain forming a “fan-shaped” area of contaminated soil. This area of contaminated soil empties into Smallpox Creek at Samples X206 and X207. Sample X206 is the furthest up-gradient location, and thus designates the PPE. Sample X206 was collected from Smallpox Creek and contains the same inorganic analytes as those detected in up-gradient sources. Once present in Smallpox Creek, surface water continues to flow for 2.7 miles before joining with the Mississippi River. Once present in the Mississippi River, the flow continues south for an additional 12.3 miles before reaching the 15-mile Target Distance Limit (TDL) near mile marker 550. A map illustrating the 15-mile TDL can be found in Appendix A.

Smallpox Creek is listed as a lower perennial water body according to U.S. Geological Survey topographical maps. According to Federal Emergency Management Agency National Flood Insurance Maps, Smallpox Creek is located within the 100-year flood plain boundary. The Illinois Department of Natural Resources (IDNR) regulates trapping along Smallpox Creek and portions of the Mississippi River. The Mississippi River is used for recreational and commercial fishing according to IDNR. Interviews with local residents have revealed that lower portions of Smallpox Creek have been used for recreational fishing and canoeing. According to Illinois EPA file information, there are no known surface water intakes within the TDL.

At the request of Illinois EPA, IDNR completed an Endangered Species Consultation on October 28, 2009. The consultation concluded that Smallpox Creek empties into a Mississippi River Backwaters area which is designated as a Jo Daviess County Illinois Natural Area. Also, the weed shiner and western sand darter were two state protected aquatic resources located in the backwaters of the Mississippi River at this location.

Sampling data collected during the Expanded Site Inspection indicate that inorganic contaminants have migrated into Smallpox Creek from the Bautsch-Gray Mine Site. Although total attribution from the Bautsch-Gary Mine Site can be completely determined, an observed release can be determined by direct observation. Observations made during the 2009 Expanded Site Inspection revealed that mine tailings and surface water were seen entering Smallpox Creek. A 1971 National Pollutant Discharge Elimination System (NPDES) permit issued to Eagle Picher Industries indicates that Smallpox Creek receives surface water discharge from the Bautsch-Gray Mine facility. The permit also indicates that hazardous substances may be present in the discharge.

### Section 5.3 Soil Exposure

Since at least 1927, mining activities have been taking place at the Bautsch-Gray Mine area. Throughout its existence, at least three different companies operated at this location until 1979. Past mining activities have resulted in at least three separate source areas that contain elevated levels of inorganic contamination. Specific information regarding these source areas are describe in greater details in Section 4.0 of the Expanded Site Inspection Report.

All of the source areas contained inorganic contamination within the top two feet of the surface that can be linked to past mining activities. Due to the lack of vegetative cover on some of the source areas, their surfaces are prone to erosion. None of the source areas are completely

fenced, but due to their remote locations, trespassing appears to be minimal. The nearest permanent resident is located approximately 50 feet from the Bautsch-Gray Mine settling pond. An additional residential resident is located within 200 feet of the site. According to the Illinois Department of Natural Resources, there are no sensitive environments, other than wetlands, on the site or within ½ mile. There are no schools or daycare facilities located within 200 feet of the site. There are signs of stressed vegetation in all of the impacted areas.

Information gathered from the Soil Survey of Jo Daviess County, the Bautsch-Gray Mine Site area has three different classifications. The large tailings pile has been designated as a dump characterized by deep accumulation of mine refuse and can be easily eroded. The settling pond has been designated in the soil survey as containing water although due to the permeable nature of the mine tailings, very little water is actually present. The overland flow route has been designated as Wakeland Silt Loam. This type of material is somewhat poorly drained, is frequently flooded, and can be found on flood plains.

During the Expanded Site Inspection, five soil samples were collected from the overland flow route. Each location indicated that lead, zinc, arsenic, cadmium, and copper were present at levels that exceeded observed release criteria. These contaminants were also related to up-gradient sources and can be attributed to past mining activities. There were also signs of stressed vegetation throughout this area.

Four samples were collected from the large wetland located northwest of the tailings pile. Photographs of past rain events have documented that excess mine tailings from the pile have migrated into this wetland. Sample X211 indicated that elevated levels of zinc were present at the most up-gradient location within the wetland. Additional down-gradient sampling, however, did not indicate that elevated levels of zinc or other inorganic contaminants were present. Within this wetland, hydrophytes and standing water was present that indicated an area important to the unique biotic community existed.

Using U.S. Geological Survey topographical maps and U.S. Census data, an estimated 129 people reside within one-mile of the site. A map illustrating the 4-mile distance rings can be found in Appendix A.

**Nearby population within one-mile of the site**

<b>Distance (mi)</b>	<b>Population</b>
0 - 1/4	14

1/4 - 1/2	31
1/2 - 1	84
<b>Total</b>	<b>129</b>

The number of people was calculated using 2.40 people per household in Jo Daviess County, as established by the U.S. Census Bureau, 2000.

#### Section 5.4 Air Route

No air sampling data were collected during the Expanded Site Inspection. Although no formal air data were collected several source areas have been identified to contain elevated levels of inorganic contamination on their surface and devoid of vegetation. Much of the contaminated sources consist of mine tailings. Mine tailings are mostly fine-grained material similar to sand. This type of material could easily become suspended in air during dry and windy conditions. There are two residential properties located within 200 feet of the site. An estimated 924 people reside within a 4-mile radius of the site. A 4-Mile Radius Map can be found in Appendix A.

#### **Individuals potentially exposed to air-borne contaminants**

<b>Distance (mi)</b>	<b>Population</b>
0 - 1/4	14
1/4 - 1/2	31
1/2 - 1	84
1 - 2	78
2 - 3	170
3 - 4	547
<b>Total</b>	<b>924</b>

The number of people was calculated using 2.40 people per household in Jo Daviess County, as established by the U.S. Census Bureau, 2000.

### **Section 6.0 Additional Risk-Based Objectives**

This section discusses additional risk-based objectives used to evaluate the Bautsch-Gray Mine Site. These objectives are not used to evaluate the site for Hazard Ranking System purposes.

## Section 6.1 Sediment Quality Guidelines

Sediment samples that were collected during the Expanded Site Inspection were compared to ecological benchmarks to help determine whether site activities have impacted the surface water pathway. Two different ecological benchmarks were used for this comparison: Ontario Sediment Quality Guidelines (Ontario) and U.S. EPA Ecotox thresholds. Ontario standards are non-regulatory ecological benchmark values that serve as indicators of potential aquatic impacts. Levels of contaminants below Ontario benchmarks indicate a level of pollution that has no effect on the majority of sediment-dwelling organisms. Levels of contaminants above a severe effect Ontario benchmark can cause a pronounced disturbance of the sediment dwelling community. Ecotox thresholds are ecological benchmarks above which there is sufficient concern regarding adverse ecological effects to warrant further site investigation. Ecotox thresholds and Ontario Sediment Quality Guidelines are to be used for screening purposes and are not be used as regulatory, site-specific cleanup standards or remediation goals.

### ECOTOX Thresholds

Compound	Benchmark	X200	X201-A	X201-B	X202	X203	X204
Lead	47	113	NA	NA	213	NA	101
Zinc	150	1570	3760	151	6490	4680	4650
Cadmium	1.2	5.8	6.9	NA	16.7	12.6	11.9
Arsenic	8.2	20.8	NA	NA	24.8	9.8	11.1

\* values reported in parts per million (ppm)

\* NA – represents data below the Ecotox benchmark

Compound	Benchmark	X205	X206	X207	X208	X209	X210
Lead	47	95.1	986	533	127	357	2070
Zinc	150	4270	5070	4320	1530	2540	9490
Cadmium	1.2	10.8	12.5	10.6	3.5	5.9	24.9
Arsenic	8.2	11.1	11.9	20.6	NA	NA	33.9

\* values reported in parts per million (ppm)

\* NA – represents data below the Ecotox benchmark

### Ontario Sediment Quality Data

Compound	Benchmark	X200	X201-A	X201-B	X202	X203	X204
Lead	250	NA	NA	NA	NA	NA	NA
Zinc	820	1570	3760	NA	6490	4680	4650
Cadmium	10	NA	NA	NA	16.7	12.6	11.9
Arsenic	33	NA	NA	NA	NA	NA	NA

\* values reported in parts per million (ppm)

\* benchmark values are severe effect levels

\* NA – represents data below the Ontario benchmarks

Compound	Benchmark	X205	X206	X207	X208	X209	X210
Lead	250	NA	986	533	NA	357	2070
Zinc	820	4270	5070	4320	1530	2540	9490
Cadmium	10	10.8	12.5	10.6	NA	NA	24.9
Arsenic	33	NA	NA	NA	NA	NA	33.9

\* values reported in parts per million (ppm)

\* benchmark values are severe effect levels

\* NA – represents data below the Ontario benchmarks

## Section 7.0 Summary

During November 2009, Illinois EPA conducted an Expanded Site Inspection at the Bautsch-Gray Mine Site in Galena, Illinois. The Expanded Site Inspection was conducted in order to determine the impact that the abandoned mine has had on the surrounding properties and drainage ways. The investigation also prompted a referral for a time-critical removal action to be conducted by U.S. EPA Region 5. The Expanded Site Inspection is intended to gather the necessary information needed to list the site on the National Priorities List and support any future removal activities at the site.

The neglect that has occurred on the abandoned mine property has allowed the migration of mine tailings to nearby properties and water bodies. The property has been dormant to mining activities for at least 30 years and continues to deteriorate. Three distinct sources of contamination have been identified at the site: a 40 acre mine tailings pile, a 4.8 acre surface impoundment, and 4.9 acres of contaminated soil. Each source continues to be uncontrolled and contain elevated levels of lead, cadmium, zinc, arsenic, and copper.

In 2000 a CERCLA Integrated Assessment identified contaminated groundwater within a nearby residential drinking water well. Following the assessment, the Illinois Department of Public Health recommended that the resident cease use of the well for drinking purposes. The resident has been on bottled drinking water since that time. A sample was collected in 2010 of the same drinking water well. Levels of lead still exceeded the Maximum Contaminant Level (MCL) for the three residents that occupy that residence. No additional drinking water wells were found to contain elevated levels of metals.

The 2009 Expanded Site Inspection found that the sediments of Smallpox Creek have been impacted by the uncontrolled migration of mine tailings originating from the Bautsch-Gray Mine

Site. Five samples from Smallpox Creek have documented the presence of inorganic contamination similar to that found in up-gradient sources associated with the Bautsch-Gray Mine Site. Smallpox Creek flows for approximately 2.7 miles before reaching the Mississippi River. Smallpox Creek is a perennial water body that is used for trapping, fishing, and canoeing. The Mississippi River is a fishery and contains two protected aquatic species near the confluence with Smallpox Creek.

Contaminated material was located within the top two feet in the three source areas that were identified during the Expanded Site Inspection. These source areas, although located in a lowly populated area, remain slightly accessible to human intrusion. Due to these concerns, the soil exposure route remains an area of concern for this site.

As noted throughout the report, areas that contain mine tailings are typically not vegetated. This lack of vegetation would not prevent surface materials from being dispersed by wind. Although no air sampling was conducted during the Expanded Site Inspection, wind erosion may contribute to the transportation and depositions of contaminated mine tailings to surrounding areas and nearby residents.

A large wetland is located to the northwest of the mine tailings pile. It appears that excess surface water and mine tailings may flow from the tailings pile toward this wetland. Although it appears that the wetland receives excess surface water flow, analytical results from the Expanded Site Inspection did not reveal excess levels of inorganic contamination in this area.

While the Expanded Site Inspection was in progress, U.S. EPA and their contractors were in the process of conducting time-critical removal activities at the Bautsch-Gray Mine. The time-critical removal action has been focusing upon a nearby residential drinking water well, a nearby residential yard, roadside ditches that parallel Blackjack Road, and the mine tailings pile. At the time of this report, U.S. EPA is currently negotiating with the Potentially Responsible Parties (PRP's) for the cleanup of these areas that meet time-critical removal criteria. The time-critical removal activity will only address those site conditions that meet imminent and substantial endangerment criteria.

## Section 8.0 References

Illinois Environmental Protection Agency, Bureau of Land: file for Bautsch-Gray Mine, LPC# 0858135001

National Oceanic and Atmospheric Administration, National Weather Service, Precipitation Frequency Data Server for Illinois, [http://hdsc.nws.noaa.gov/hdsc/pfds/orb/il\\_pfds.html](http://hdsc.nws.noaa.gov/hdsc/pfds/orb/il_pfds.html)

Illinois Department of Natural Resources, Impact Assessment, Ecological Compliance Assessment Tool for Illinois, <http://dnrecocat.state.il.us/ecopublic/>

Federal Emergency Management Agency, Flood Insurance Map, County of Jo Daviess, January 18, 1984, Panel Number 170902 0150 B

Illinois Department of Transportation aerial photographs, Bureau of Location and Environment, Aerial Survey Section

Agency for Toxic Substance and Disease Registry, Tox FAQ's for Lead, Zinc, Cadmium, and Arsenic, ATSDR web site; <http://www.atsdr.cdc.gov/toxfaq.html>

United States Census Bureau, census data for Jo Daviess County, Illinois, web site; <http://www.census.gov/geo/www/maps/>

Illinois Natural Resources Geospatial Data Clearinghouse, Illinois State Geological Survey, Aerial Photography and Topographical Maps for Bellevue-Iowa Quadrangle, Hanover Quadrangle, Springbrook-Iowa Quadrangle, Green Island-Iowa-Illinois Quadrangle, Scales Mound West Quadrangle, Galena Quadrangle; <http://www.isgs.edu/nsdihome/>

A History of the Upper Mississippi Valley Lead Zinc District, Patty Verzal, 2002, <http://www.uwplatt.edu/geography/mines/history.html>

The Mississippi Valley Historical Review volume IV, Published by The Mississippi Valley Historical Association, June 1917 to March 1918

History of Jo Daviess County, <http://genealogytrails.com/ill/jodaviess/history1904.html>

Documentation and Analysis of a Massive Rock Failure at the Bautsch-Mine, Galena, Illinois, United State Department of the Interior, Jack Touseull and Charles Rich, Jr., 1980

Preliminary Compilation of Descriptive Geoenvironmental Mineral Deposit Models, Chapter 2, Bioavailability of Metals, U.S. Department of the Interior, U.S. Geological Survey, David A. John and Joel S. Leventhal, 1995, <http://pubs.usgs.gov/of/1995/ofr-95-0831/CHAP2.pdf>



Site Assessment Report for Bautsch-Gray Mine Site, Prepared by Weston Solutions  
Incorporated for United States Environmental Protection Agency, Region 5,  
March 9, 2010.